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PRIZE ESSAY

ON THE

RELATIONS

OF THE

Different Professions and Vocations

TO

LONGEVITY.

By Lieut. J. W. MACLAY.

NEW YORK:
FRANCIS HART & CO., 12 & 14 COLLEGE PLACE.
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INTRODUCTION.

BY THE COMPANY.

BIOMETRY,

THE MEASURE OF LIFE;

OR

THE SCIENCE AND ART OF MEASURING PROBABLE LIFETIMES.

The above name was the happy suggestion of Hon. William Cassidy, of Albany, and has been adopted because from its derivation it precisely expresses the intended meaning—*Bios*, life; *metron*, (*meter*) a measure. Yet, as Geometry, from *Ge*, the earth, and *Metron*, a measure, means not only a measure of the earth, but also the science and art of measuring the earth, so does Biometry mean the science and art of measuring life or lifetimes.

Meaning of Lifetime.—Lifetime is always a qualifying idea of life. Without a *time* during which life continues, our idea of it would not be complete. It includes the idea of being born, or originating from ancestors, and of dying, as well as of a period between its beginning and end; for we never find life otherwise than in these relations.

It is observable that the natural lifetimes of different things vary much, from a few moments to many years; it is also as evident that different individuals of the same kind have different lifetimes.

We are too apt to attribute these differences to accidental influences contingent after birth. Such influences often do have the effect of shortening the natural lifetime; but we should, if well informed, allow more often than we do, that, in a majority of cases, the actual lifetime is nearly that with which the living thing was born, and to which it is limited.

It is too often thought that there is a lifetime of the race, say three score years and ten, to which each person is entitled. It matters not just now, whether this view be taken, or the correct one, that there is a natural lifetime inherited, and which can be shortened only—it is evident that what occurs before birth, affecting the lifetime of a person, must be studied under one head, and the influences exerted after birth, and their effects, must be studied under a separate head.

Under the *first* head,

Biometry must study well the narrative of ancestral history, and the indications deducible therefrom. But as it matters not whence the long-lived constitution has been derived, provided it be possessed, so it does not matter how long-lived a person's ancestors are or have been, if *their* good constitution has not been inherited ; therefore,

Biometry must also measure truly the viability, *i. e.* the combined vitality and longevity of the Constitution. For this purpose it has three measures—the size, form, and color of the different parts of the body.

By these measures the "*expert*" will rarely fail to discern the possible and the probable natural lifetime. While applying the measures he will also find that some are *standard*, not changing during the lifetime in any case, thus proving that the fundamental constitution is permanent, and born with the birth of a person. For example : the color of the eyes very rarely if ever changes, the shade fades, but the color of the eyes at birth remains the same until death. (*For additional facts upon this topic see "General Circular," gratis, and our Book, entitled "Longevity."*)

But the very best constitutions may be undermined by adverse influences, many of which are avertible or avoidable.

Under the *second* head, therefore,

Biometry fully recognizes and measures all the influences acting after birth—found under five heads—Habits, Vocation, Residence, Health, and Intelligence ; nor does *Biometry* hesitate to be taught by the Instincts.

Dr. Maudsley says—"Men, without knowing why, often follow a course for which very good reasons exist. The practical instincts of mankind often work beneficially, even in contradiction to their professed doctrines. Man does not consciously determine his method and then enter upon it ; he enters blindly upon it and at a certain stage awakes to consciousness. It would go hard with men if they must act wittingly before acting at all."

In fact, some of the best indications in regard to the probable length of a person's life, are to be found in his own instincts, which are to be questioned carefully. Often this must be done indirectly, for perhaps the person himself is not aware of them, or does not know their meaning. He often selects a vocation, residence, or peculiar kind of food, quits business or enters upon new projects, induced by his instincts. Every doctor has indulged with advantage the cravings of the convalescent. Tailors are usually short-lived—usually their ancestors are. Blacksmiths are generally long-lived, and as uniformly have long-lived ancestors. The vocations might be supposed to affect health and life, but it is not apparent how they would affect the ancestors' longevity. Judges are long-lived; so are their ancestors. Their vocation is not particularly favorable, but the inherited vigor that gives them judicial qualities enables them to bear the strain which short-lived persons would neither undertake nor sustain. It is not to be understood that all naturally long-lived persons have good judicial characteristics, although they generally do have. But it is a fact that all those persons who have unusually good judicial minds do have long-lived ancestry. All the higher judges in the United States—a few years ago—were ascertained as a fact to have long-lived ancestry upon both sides. In 111 Towns examined in New England, without exception, each of the three Selectmen had long-lived ancestry upon both sides. Certainly they were not selected with this fact in view.

Because a large number of preachers die young, especially in some sects, and a still larger number grow old in the same and other sects, is it proved that the vocation tends to produce both long and short life ?

A farmer's vocation is very good for the vigorous, but would be a very unfortunate choice for the scrofulous, or otherwise weakly person ; he would be too much exposed. If the vigorous try it, it will prove healthy ; if the weakly try to gain strength by its exposures, it will fall into disgrace. Persons of a bilious temperament will condemn indoor vocations but commend outdoor pursuits. In fact, most persons governed by their instincts select vocations the most protective to them. There are exceptional vocations injurious to all ; but fortunately they will seldom, if ever, be chosen by the naturally long-lived, who usually have much good sense and caution. Hence, the apparent influence of a vocation will generally depend upon the kind of persons who enter it.

Statistical tables are generally quite useless, or positively harmful, because they include in their averages such different kinds of persons, and thus mislead the student from noticing real causes and deductions.

Such tables are also almost always made with reference to *averages*. Shoemakers average to live a certain time, Stonecutters a certain time, Doctors ditto, etc., etc. The same vicious *averaging* is used as that which produces such havoc among Life Insurance Companies, a large majority of which have failed on that account, and others will follow until this pernicious *doctrine of averages* is discarded.

We have seen a shoemaker working on the bench at 96 years of age; a brother of his on the bench at 84, well and hearty, never, from boyhood, having lost a day's work; another brother on the bench over 70, with impaired health, whose habits were irregular. We have seen a tailor at work at 92. Do these facts prove that those vocations improve health? By no means. But they prove that those vocations are not equally inimical to all constitutions. Statistical tables in regard to the effects of marriage are generally worse than useless, because the persons enumerated are averaged. The most healthy and vigorous will marry, hence the married will be most healthy. Without doubt marriage promotes or preserves the health of the healthy; the lives of others are often materially shortened by marriage. Yet, when these tables—bad as they are—are "*expertly*" used they are exceedingly valuable, suggesting many facts and deductions with which Biometry is concerned.

The author of the accompanying "Prize Essay" has not always kept in mind the vital truth just mentioned. He refers to Ancestry as a source of longevity, yet, at various times is at a loss to account for very interesting facts that he presents, and which Ancestral and Constitutional Biometry would have solved. But the "Essay" is freest from this common error, and far the most correct, interesting, and valuable in its deductions of any that has been written upon its subject.

True, it is not exhaustive. There is yet much need for *original* observations upon Vocations in relation to length of life in this country, after the excellent manner of the very interesting work of Dr. Thackrah. We are anxious to encourage and aid efforts in that direction. Indeed we are very desirous of obtaining ideas upon every topic of Biometry. Upon the Constitutional Indications of Longevity, we sometime since published Prize Essays; lately we have issued a Prize Essay upon Intemperance; we now present one upon Vocations; have in press a very interesting one upon Residence; and hope that ere long some well-qualified person will discuss for us the important and interesting topic—The Relations of Intelligence and the Instincts to Life Insurance. "Methods of Discriminating Health and Diseases" is in preparation by our Surgeon-in-Chief. "A Brief of Hygiene," by our President, has been issued by Messrs. Wood & Co.,—and also a large volume upon Longevity and Insurance. All these are topical *nuclei* of an intended Encyclopædia of Theoretical and Practical Biometry.

It should be noticed that we desire that which is *original* and of real value, concisely stated, illustrated, and proved. We are familiar with everything which has been published, and a compilation or compendium so often presented to us is not what we want. We prize that from which we can learn something, and are willing to pay for it; *first*, for our own benefit, and *second* for the purpose of public dissemination.

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INTRODUCTORY.

Before entering on our enquiries concerning the subject of this Essay, it will be necessary to define the term "longevity." This is a general expression, which is used to designate an advanced age, and also to denote the average length of life, or the mean age at death. We will distinguish the former meaning by the appellation—abnormal longevity; while the latter (or normal longevity) is the sense in which we understand the word as relating to the value of life in different occupations.

Normal Longevity.—To illustrate this subject more specifically, let us look at what the tables of mortality show. In the last century most of the writers on the science of life insurance calculated that of 56 persons alive at the age of 30, not one would survive in 56 years. The astronomer Halley, who is entitled to the honor of being the pioneer in these calculations, and whose table was the first one published, has left us the following as his estimate of the average existence of every thousand persons born:

661	will be	living at	10	years of age.	242	will be	living at	60	years of age.
598	"	"	20	"	142	"	"	70	"
531	"	"	30	"	41	"	"	80	"
445	"	"	40	"	19	"	"	84	"
346	"	"	50	"					

The Highland Society of Scotland caused a table to be compiled in which the average mortality of three different classes of government annuity observations was taken as a basis. As the result of the computation, it appeared that "of 1,005 persons alive at the beginning of the 21st year of their age, 10 died during that year, and the average number alive throughout the year was 1,000; that 915, out of the original 1,005 attained their 30th year, in the course of which year 10 died; that 681 reached the beginning of their 50th year, in the course of which 13 died; that only 324, out of the 1,005 survived their 71st year, in which year 23 died; and that not one of the original 1,005 was alive at the commencement of the 76th year." Thus the voyage of life terminated by the death of the last persons out of all, in 56 years from the 20th year of their ages. [If this statement be reliable it would show some peculiarity in those observed, since in almost any other group of 1,000 persons one-fifth would live until 80 years of age.]

The average of life varies with the habits of the people, as regards morality, industry, and civilized culture. The highest average prevails among those nations distinguished for their civilization and riches, while those countries noted for their poverty, and deficient in the knowledge of the Arts and Sciences, furnish the lowest standard.

At Geneva, where mortality statistics have been preserved since the 16th century, a marked improvement in the average duration of life has been observed. In the 16th century the probable life term was less than 5 years (?); in the 17th it was about 11 years; at the commencement of the last century it had increased to 27 years, and at the end of the same century had reached 32 years; while now it is 44 years.

The following statistical summary of the death rate in Paris shows a similar improvement in the longevity of its inhabitants:

1700, A. D.,	1 in 28	1851, A. D.,	1 in 38
1750 "	" 30	1861 "	" 39
1836 "	" 36	1863 "	" 40
1846 "	" 37		

Abnormal Longevity.—"Man, being twenty years growing," observes Flourens, "lives five times twenty; that is to say, a hundred years," and the same opinion has been advanced by Buffon, and other naturalists and philosophers. But statistics prove that extraordinary longevity—such as a hundred years—like extraordinary weight or stature of individuals, is of an exceptional nature.

James Easton, of London, has published an account of the name, age, residence, and year of decease of over seventeen hundred persons who survived to the age of one hundred years and more, from the 1st to the 18th centuries. Of males and females who lived from

	100 to 110 years, the instances have been	1,310
Above	110 " 120 " " "	277
"	120 " 130 " " "	84
"	130 " 140 " " "	26 (?)
"	140 " 150 " " "	7 (?)
"	150 " 160 " " "	3 (?)
"	160 " 170 " " "	2 (?)
"	170 " 185 " " "	3 (?)

Haller, who devoted much attention to investigations concerning centenarians, had knowledge of 62 persons surviving to from 110 to 120 years; 29 that lived from 120 to 130 years (?); and 15 that reached from 130 to 140 years (?).

Although many of the reported cases of abnormal longevity are of doubtful authenticity, there are a sufficient number of recent instances, to establish the fact that centenarians are not so rare as is commonly imagined.

The annexed table contains a record of over thirty centenarians that have died in the city of New York during a period of four years,—their names, ages, nativity, cause of death, &c., compiled from the Official Records of the Board of Health:

Age. Years.	Name.	Nativity.	Cause of Death.	Color.	Date of Decease.
100	Hulda Wood,	New Jersey,	Old age,	White,	Jan. 9, 1864.
100	Bridget O'Brien,	Ireland,	Pneumonia,	"	Feb. 8, "
104	Ira Cromwell,	Baltimore,	Old age,	Colored,	Mar. 16, "
105	Mary Buckley,	New York,	Erysipelas,	"	" 21, "
103	M. Thomas,	Maryland,	Old age,	"	May 27, "
100	Elizabeth Price,	North Car.,	" "	"	" 31, "
100	Leah Cropsie,	Virginia,	Dropsy,	"	June 17, "
109	Isaac Daniels,	Bedford, N.Y.	Old age,	White,	" 28, "
100	Ann Jackson,	Staten Isl.,	" "	Colored,	July 10, "
102	Rachel Stafford,	New Jersey,	" "	White,	" 13, "
100	Isabella Cook,	Virginia,	" "	Colored,	Sept. 7, "
103	Rose Gilligan,	Ireland,	" "	White,	Dec. 14, "
100	Mrs. D. McKinney	New Jersey,	" "	Colored,	Jan. 7, 1865.
104	Johanna Waters,	Ireland,	Cancer,	White,	Feb. 4, "
100	Francis Davis,	New York,	Asthma,	Colored,	Mar. 13, "
105	Minerva Ellis,	West Indies,	Old age,	"	June 4, "
105	Absolom Thorton	Ireland,	Str'g'd hernia	White,	Aug. 9, "
104	Thomas Golden,	"	Old age,	"	" 18, "
101	Thomas McNally	"	" "	"	" 21, "
100	Patrick Noonan,	"	" "	"	Oct. 6, "
100	James Quin,	"	" "	"	Nov. 30, "
104	Mary McMahon,	New York,	" "	"	Jan. 19, "
106	William Daily,	Ireland,	" "	Colored,	May 4, "
118	Mary A. Bastine,	New York,	" "	White,	" 15, "
100	Mary Griffin,	Ireland,	" "	"	July 17, "
100	Bridget Noon,	"	Cholera,	"	Aug. 1, 1866.
100	Margaret Farrel,	"	Old age,	"	Sept. 12, "
105	Phyllis Bees,	New York,	" "	Colored,	Dec. 7, "
100	Rebecca Ward,	Scotland,	" "	White,	Feb. 10, 1867.
100	Margaret Hartz,	Ireland,	" "	"	Jan. 6, "
103	Emilie C. Lorentz,	Germany,	" "	"	Mar. 15, "
109	Judy Green,	New York,	" "	"	May 15, "

MASSACHUSETTS CENTENARIANS WHO DIED IN 1866.

Age. Years.	Name.	Nativity.	Place of Death.	Married or Single.	Date of Death.
102	Joanna McCarty,	Ireland,	Boston,	Married,	Jan. 18th.
101	Lucy Cooper,	Africa, (col'd)	Nantucket,	"	Feb. 2d.
103	Eunice W. Forbes	Mass.,	Ashfield,	"	March 9th.
104	Mary English,	"	Lawrence,	"	May 16th.
100	Joanna Shehan,	Ireland,	Tewksbury,	"	" 21st.
102	Elizab'h Phillips,	Mass., (col'd),	Boston,	"	July 5th.
101	Caso Brazee,	(Unknown),	Sheffield,	"	Nov. 16th.
101	Catherine Lynch,	Ireland,	Springfield,	"	" 17th.
101	Mary Magnill,	"	Lowell,	"	" 27th.

If we could ascertain with accuracy the personal habits of each individual in these lists of centenarians, we should probably find contradictions to perplex us, and very little information—in regard to habits of living—of any value as a rule of life.

Cardinal de Salis, Archbishop of Seville, died at the extreme age of 110. When answering questions as to what regimen he had observed, he used to reply in general, that he had always led a sober, studious life. "My diet was sparing, though delicate; my liquors the best wines of Xeres and La Manche, of which I never exceeded a pint at any meal, except in cold weather—when I allowed myself a third more."

Others we find, like Wm. Daily, mentioned in our table, "who rarely tasted alcoholic stimulants of any kind." Like most centenarians he was rather below than above the medium height, measuring only 5 feet 3 inches. He affords another proof that extreme longevity is almost in every case inherited. His father lived 103 years, and a sister attained the same age.

Robert Bowman—an account of whose life is published in the *Edinburgh Philosophical Journal*, 1820,—died at the age of 118. He had a brother who died in 1810, aged 99; a cousin died 1818, aged 95; and another cousin survived him, 87 years old. The youngest of six sons that he left was 50 years of age, and the oldest 62.

As a case of remarkable longevity we may instance that of Timothy Fitzgerald, an Irishman, who is in his 108th year, now living at Rhinecliff, on the Hudson. Born in the county of Waterford in 1764, he was over thirty at the time of the Irish Rebellion, and did not emigrate to this country until 1851. He has been twice married; his last wife is nearly his own age. Among his numerous descendants who surround him are 12 grand-children, and 7 great grand-children.

Fitzgerald has supported himself as a laborer and fisherman. Although a temperate man, he has long used tobacco. For the past year his mind has failed. His sight is not impaired, and he still retains his teeth, but is quite deaf.

Among the best authenticated instances of centenarianism is that of the Rev. Daniel Waldo, who died at Syracuse, July 30th, 1864, in the 102d year of his age.

"Father Waldo," as he was called, was born in Windham, Conn., Sept. 10th, 1762. During our Revolutionary War he was drafted into the American Army, though only 16 years of age, and was with Gen. Putnam at the engagement of Horse-Neck. He was here made a prisoner and then confined in the old sugar-house, in New York City. Through the intercession of a British officer, on account of his extreme youth, Waldo was released after only two months' detention. In 1788 he graduated at Yale College, and then studied for the ministry. Four years later, having finished his theological studies, he was ordained at West Suffield, Conn., as pastor of the Congregational church. His pastorate of this church lasted nineteen years. In 1810 he preached at Cambrigeport, Mass., and for the nine ensuing years was a missionary in Rhode Island. From 1823 to 1835, Waldo officiated as a clergyman in Exeter, Conn., and then removed to Syracuse, N. Y.

Father Waldo, in 1855, was elected Chaplain of the House of Representatives, on the motion of Hon. A. P. Granger, of Syracuse. In 1857 he was re-elected to the same position, although then in his ninety-fifth year.

This venerable clergyman, distinguished for seventy years' service in the church, retained his faculties so as to be able to preach with vigor after a century of existence. His farewell sermon was delivered when he had reached his 102d year.

His death was the result of an accident. In passing from one room to another he slipped, and fell down a few steps.

VARIOUS INFLUENCES BESIDE VOCATION AFFECTING LENGTH OF LIFE.

To inherited stamina many writers have added other and more questionable causes as accounting for longevity.

Sir John Sinclair asserts that longevity is compatible with every profession, occupation, and habit of life. "Old men, it would seem, were to be found amongst those who had traveled, and among those who had never been out of their own parish. Excess can produce her veterans; since some have kept off the grim tyrant by libations of wine as successfully as others have by potations of water. In short, it appeared that many who agreed in scarcely anything else, agreed in having attained longevity. But there were only two questions in which they all agreed, and these two questions, when put, were always answered in the affirmative by the oldest of those Greenwich and Chelsea pensioners to whom they were proposed. The questions were these: *"Were you descended from parents of long life and good stamina?"* and, *"Have you been in the habit of early rising?"*

"Expectation" of Life.—The proverbial uncertainty of human life, although true as regards individual cases, does not seem to hold good when applied to the average or probable length of life of a large number of similar persons taken collectively. By the aid of science the probable duration of several similar lives may be computed from certain given conditions, with great precision.

Vital statistics are usually derived by accumulating, comparing and classifying an immense number of facts concerning the mortality of persons without regard to their having had similar or dissimilar probabilities of living, which is an element of great importance. From such calculations an average is deduced and the chance or "expectation" of life estimated. M. Queteleb, the Astronomer Royal of Belgium, and one of the most eminent authorities on vital statistics, has constructed the following table of the probable after-life-time, for both sexes, at ages varying from birth to eighty, of all classes of persons taken together:

Age	0	10	20	30	40	50	60	70	80
Expectation ...	42	50	43	35	27	20	13	7	4

The expectation of life, for any individual (?), can be easily calculated from an arithmetical formula of C. M. Willich, of London, which is expressed by $E = \frac{2}{3}(80\text{-}a)$, or the expectation is equal to two-thirds of the difference between the age of the person and eighty. This very simple method is found to give results which do not materially differ from Dr. Farr's tables, taken from a census of sixteen millions of people, and the ages at decease of two and a half millions of persons. Among other mortality tables, extensively used for the calculation of life annuities, is that of Dr. Price. This was compiled from the burial register at Northampton, for nearly fifty years. In consequence of improvement in the health of the public, the average of mortality is now less, or the expectation of life is greater, than that given in this table. The Carlisle table was deduced by Mr. Milne, from observations at Carlisle. Government annuitants, to the number of twenty-two thousand, furnished the data of the Finlaison table. These last two tables have formed the basis of determining the mean "expectation" of life at various ages, of many assurance companies. We give below a condensed summary of these, including the French table, and also the experience of seventeen assurance offices, computed under the superintendence of a committee of actuaries, and embracing 62,537 assurances.

Ages.	Northampton Table.		Carlisle Table.		London Equitable Society.		Government Annuitants.		Experience of 17 Officers.		Dr. Farr's Table.		French Table.		Average.	
	Y.	M.	Y.	M.	Y.	M.	Y.	M.	Y.	M.	Y.	M.	Y.	M.	Y.	M.
25	20	10	37	10	38	1	38	4	37	11	36	8	37	2	36	8
30	28	3	34	4	34	4	35	5	34	5	32	2	34	1	33	5
40	23	1	27	7	27	5	29	1	27	3	26	6	27	6	26	7

The "expectation" of life in different cases must depend upon many circumstances.

Influence of Climate upon Longevity.—The favorable influence of some climates as compared with others upon the duration of life, has been determined in many cases with absolute certainty; while in others we have been left to little else than conjecture, owing to the absence of any general interest in the subject, the dearth of the kinds of records and statistics which could best aid enquiry, and the want of uniformity in most of the states in a thorough and proper registration of births and deaths.

In any attempt, also, to ascertain this influence, care must be taken to select like classes, and similar pursuits in the respective districts compared. "The mortality of some trades at particular ages" says an English writer, "is from 30 to 40 per cent. above that of others, and it is therefore evident that if any particular town or locality had a preponderance of the unhealthy trades to the exclusion of the more healthy, such circumstance would account for an increased rate of mortality, independent of any peculiar local influence on the duration of life."

The climate of St. Augustine, Florida, is said to be a very healthful one, so much so, that invalids in considerable numbers flock to it to escape the rigor of our northern winters. Yet, if no discrimination is made between the deaths which occur among these invalids and those of the resident population, St. Augustine will compare very unfavorably with places notoriously less healthy.

St. Thomas furnishes another illustration:. So many unfavorable statements in respect to the unhealthfulness of this island have found their way into print, that it has become associated in many minds with contagion, disease, and death. No such reputation has ever attached to Santa Cruz, or Porto Rico, situated at so little distance from St. Thomas as to be visible from its shores. The explanation may be briefly stated: a large part of the population of St. Thomas consists of negroes, sailors, strangers and invalids from northern climes. The mortality under such circumstances will always appear great. Again, the majority of the children of the poorer classes are illegitimate, and death is ever busy among them. Apart from the operation of these causes, the island is as salubrious as any other of the West Indies.

There is a region of Scotland remarkable for the general health of its inhabitants, and the numerous instances of longevity found among them. It comprises the narrow valleys formed between the ridges of that chain of mountains which shut in Loch Lomond and its numerous islands. Its inhabitants may well boast of their longevity, of which a singular proof occurred in 1829. In that year the insurance companies of Great Britain offered annuities on the lives of men of 90 years of age, at the rate of sixty pounds a year for every hundred paid down. Agents of the companies in their search throughout the kingdom for hale nonagenarians found them most abundant in this district.

As a general rule the watering places in England deserve the repute for salubrity in which they are held. Superstition may have had much to do with the original choice of the site of some of them, and fashion may have augmented the crowds that resort to others, but their healthfulness is unquestionable, "when we find a mortality rate per 1,000 as low as 15 in the Isle of Wight, 16 in Newton Abbot—including Torquay, 17 in Cheltenham," &c.

The north coast of the Mediterranean Sea—particularly that part of it along the Gulf of Genoa which is sheltered from the cold winds of Northern and Central Europe by the the Maritime Alps—is, perhaps, unequaled as a healthful winter residence. Nice, Cannes, Mentone, and other towns in this region have become, in fact, world-renowned as winter watering-places. The advantages of the climate are seen among the native population as well as felt by temporary visitors. An intelligent practising physician, for more than 20 years in this region, says that "the average duration of life is 45 years, an average far above that of the town population of the South of Europe." He adds that "a large part of the inhabitants of the district attain to above 70 years."

Influence of Locality on Longevity.—In any attempt to determine the difference of mortality or longevity as affected by the vocation, local influences cannot be overlooked without the risk of falling into grave errors. While other elements of comparison are to be considered in their just relation and dependence, it will still be found that one of the principal causes of a lower rate of mortality, which prevails in one place over another, is, that the air enjoyed by the inhabitants of sparsely settled regions is comparatively purer, whereas it is so often vitiated where land is more valuable, dwellings more crowded, and population accumulated in masses. "Men living in towns," remarks Ray Lankester, "are likely to suffer expenditure through intemperance, in addition to which they are more liable to be taxed by diseases, favored as these are by diminished oxygenation and close contiguity of persons. Hence we understand the low longevity of bakers, and the still lower longevity of clerks, to whose sedentary habits the tax of anxiety and mental labor is added."

To illustrate the destructive tendency of residing in crowded cities, let us take an extreme case, like our great metropolis, New York City. From the statistics of the N. Y. Board of Health, we find a large proportion of the inhabitants of the city packed into the following small areas:

STATISTICS OF NEW YORK CITY.—CENSUS 1865.

Wards.	4th.	6th.	7th.	10th.	11th.	13th.	14th.	17th.	Totals and Averages
No. of acres	83	86	110	198	196	107	96	331	1207
Population.	17,352	19,754	36,962	31,537	39,953	26,388	23,382	79,563	293,891
Rate to acre	209	230	187	287	301	247	241	241	243

By comparing the different wards with the country at large, it will be found that the 4th Ward contains more people than Idaho, (14,998); the 6th Ward has double the population of Arizona, (9,658); the 7th Ward is more populous than the city of Mobile, (36,000); the 10th has more inhabitants than Montana and Wyoming together (20,594—9,118); while the 17th numbers more than New Mexico, (69,452).

Although the most densely crowded district—the 11th ward—shows an average of 301 persons per acre, this is far exceeded in many blocks and parts of wards, throughout the city. In some portions masses of people are collected in such numbers that there is not an average allowance of 9 square yards per man, less than the space allotted at times to the prisoners at Andersonville; for in March, 1864, there was an average space of over 11 square yards to each prisoner. The following table exhibits the crowded condition of the prison:

STATISTICS OF ANDERSONVILLE PRISON.

1864.	March.	April.	May.	June.	July.	August.
No. of Prisoners........	7,500	10,000	15,000	22,291	29,030	32,899
Dimensions of Prison....	17 acres.	17 acres.	17 acres.	17 acres.	27 acres.	27 acres.
Space, per Prisoner......	98.7 sq.ft.	74.	49.3	33.2	40.5	35.7

Here, where so many human beings were herded together that, during June, there was less than 4 square yards of room to each prisoner, the death rate was enormous. This high mortality illustrates the evil effects upon human life, of over-crowding, and the absence of sanitary precautions. For in the language of the report of an inspecting surgeon of the Confederacy, "the diseases which proved so fatal to the Federal prisoners, confined at Andersonville, Ga., were due to other causes than those connected with soil, water, and climate."

The want of light in narrow streets and other localities shut out from the solar rays, exercises a deleterious influence upon the residents of such districts, and upon those who occupy them for business. To this cause must be ascribed the pallid and earthy complexion of many merchants, miners, prisoners, and others. Servant girls, living in cellars or underground apartments where the sun is excluded, are very sickly, and their ill health may result from such local influences as the want of light, etc., rather than from their employments.

Sir John Wylie, physician to the Emperors Alexander and Nicholas of Russia, observed that, in one of the barracks at St. Petersburg, the mortality among the soldiers on the dark side of the building, where the sun-light was obscured, was two hundred times greater than the mortality among the troops quartered on the sunny side.

Dr. Sterne, of the U. S. Hospital, Togas, near Augusta, Maine, exhibits the fact that the sickness and mortality there is only one-third what it is in each of the other three similar Hospitals, situated in Wisconsin, Ohio, and Virginia. The inheritance of the persons admitted has doubtless something to do with the result, but it must be attributed chiefly to locality and the influence of light, ozone, etc.

Longevity as Affected by Intemperance. —Intemperance being ONE OF THE MOST PERNICIOUS AGENCIES in shortening life, and operating at all times and in all seasons, becomes a proper subject for notice in this Essay. No one will question the fact of its influence in this respect. Unhappily nearly every one can recall some individual corroboration of it, while in the broader field of a community or nation it is more strikingly apparent. A celebrated French physician, D. Everat, has furnished statistics showing that the mortality from this cause is annually 50,000 in England, 40,000 in Germany, 15,000 in Russia, 4,000 in Belgium, 3,000 in Spain, and 15,000 in France. Notwithstanding the universality of this vice among nearly all classes of society, few persons are aware of how materially human life is abbreviated by habits of intemperance. Mr. F. G. P. Neison, an actuary of London, from a series of careful observations, has deduced some valuable statistics regarding this subject, which prove that the average duration of life, after the commencement of intemperate habits, is as follows, viz.:

Among beer drinkers 21.7 years.
" spirit " 16.7 "
" those who drink beer and spirits indiscriminately 16.1 y'rs.

The death rate among different drinkers, Mr. Neison found to be:

Among beer drinkers 4.597 per cent. yearly.
" spirit " 5.996 " "
" mixed " 6.194 " "

The annexed table of Neison contrasts the expectation of life between temperate and intemperate persons:—

EXPECTATION OF LIFE FOR TEMPERATE AND INTEMPERATE PERSONS.

AGES.	TEMPERATE.	INTEMPERATE.	LOSS OF LIFE.	Per cent. of Duration of Life of Intemp. compared with Temp.
20	44.2 years.	15.5 years.	28.7 years.	35 per cent.
30	36.5 "	13.8 "	22.7 "	38 "
40	28.8 "	11.6 "	17.2 "	40 "
50	21.2 "	10.9 "	10.3 "	51 "
60	14.3 "	8.9 "	5.4 "	63 "

The expectation of intemperate persons—from the time of becoming intemperate—varies with the vocation:

Among mechanics, working and laboring men,	18 years.
Among traders, dealers, and merchants,	17 "
Among professional men and gentlemen,	15 "
Among females,	14 "

It will be noticed that professional men addicted to drunkenness, are shorter-lived than drunkards of other pursuits. In any particular pursuit, where intemperance prevailed to a great extent, and where it shortened life more than in others, the effect, like that of unhealthy localities, would be to reduce considerably the average longevity of that vocation.

Longevity of the Married and Unmarried.—Marriage, coëval with the human race, was instituted for its perpetuation, and both directly and indirectly contributes in the highest degree to the order, stability, and well-being of Society.

There is no surer sign of a state hastening to decay than when marriage is discouraged, and its bonds relaxed. The decline of the Roman Empire was marked not more by an exchange of the earlier simple manners for the luxury of a later time, than by the facility of divorce, the infrequency of marriages, the consequent failure of families, and the impairment of the public stock of health and virtue.

Little attention has been paid in this country to the registration of births and marriages, so that it is almost impossible to obtain any reliable information concerning the relative rates and ages of death in the married and unmarried respectively. Other governments have not been so remiss in dealing with a matter of such general and paramount interest. Great Britain and nearly all the States of Europe have an accurate system of marriage registration, enforced by law, as being essential to the wants of their respective populations.

There registers are consulted—not merely to give accuracy to biography, but to determine questions of property, descent, and legitimacy.

The French Government, especially, has attracted the attention of scientific men to the statistics it has collected from time to time in respect to marriage, and its relations to health and longevity. As an example we subjoin some extracts from the statistical tables of M. Legloyh :

FRENCH MORTALITY STATISTICS, MARRIED AND SINGLE, IN THE ENTIRE POPULATION OF FRANCE.

Average Rates of Mortality per 1,000, at the following ages.	Females.		Males.	
	Married.	Single.	Married.	Single.
20 to 25	9.8	8.5	6.5	11.3
25 " 30	9.0	9.2		
30 " 40	9.1	10.3	7.1	12.4
40 " 50	10.0	13.8	10.3	17.7
50 " 60	16.3	23.5	18.3	29.5
60 " 70	35.4	49.8	35.4	49.9

For comparison we annex the table of M. Vallin, giving the average mortality, 1858–60, per 1,000, for whole population of France.

	Whole Population.	Dep't de la Seine.	Urban Population.	Rural Population.
20 to 30	11.7	17.3	13.5	9.8
30 " 40	10.3	18.2	12.6	9.8
40 " 50	14.3	31.6	15.5	12.8

While it is true, as a general rule, that marriage is conducive to long life, (and this holds good with females as well as males,) yet, in consequence of the risks incurred in the birth of the first child, the chances of life are greater with the unmarried at certain periods; and the statistics kept by the Registrar General of Scotland show, that prior to the 30th year there is evidently, among married women, an increased rate of mortality.

Although the marriage relation is usually contracted at a time of life when the judgment is immature, and when it is satisfied with such reasons as would not be seriously considered in the most trivial undertaking, the accidents which seem to determine it are, however, seen only in individual cases. Strange as it may appear to one who has never examined the subject, marriages, when considered in relation to the numbers which are contracted in a state or nation, are subject to social laws, which operate with an energy that triumphs over every obstacle.

In every country the increase in the rate of marriages upon its population will be found to have a definite relation to its harvests, its facility for obtaining the means of living, its prosperity, its wages, and its standard of morals.

Buckle says: "It is now known that marriages have a fixed and definite relation to the price of corn; and, in England, the experience of a century has proved that, instead of having any connexion with personal feelings, they are simply regulated by the average earnings of the great mass of the people: so that this immense social and religious institution is not only swayed, but is completely controlled by the price of food and the rate of wages."

The influence of marriage upon longevity, either normal or abnormal, is a well established fact. Few unmarried centenarians will be found. In the list (see Abnormal Longevity) of those dying in Massachusetts during one year, all were married. The effect of matrimony upon the average duration of life is shown by the following comparison, the result of observations by Dr. Guy:

Mean average of married, 66.7 years.
" " " unmarried, 62.0 "

Dr. Stack has deduced the following from statistics of Scotland:

From 20 to 25 years of age twice as many bachelors die as married men, per 1,000.
" 25 " 30 " " 14.94 bachelors die, and only 8.23 married men.
" 30 " 35 " " 15.94 " " " " 8.65 " "

It is evident that the influences of marriage, of intemperance, climate, locality, &c., though subordinate to the subject of this Essay, are nevertheless inseparably connected with all variations of longevity, and cannot be overlooked.

Preliminary to the Influence of Vocations.—We have thus far considered some of the external conditions of life, which influence the mortality and consequently the longevity of man, whatever be his trade or calling. There are other elements that enter largely into any consideration of this subject, such as the inherent qualities of the individual,—the parentage, constitution, structure, form, sex, and birth; but these are independent of the human volition or control.

An important question concerning the duration of life, is the character of the habits of different groups of men, as determined by the particular profession of each, and the relation of those habits to longevity. Few will deny the fact that such an influence exists. "Even by the trade or profession the human countenance may be characterized," says Dr. Beattie. "They who employ themselves in the nicer mechanic arts, that require the earnest attention of the mind, do generally contract a fixedness of feature suited to that one uniform sentiment which engrosses them while at work. Whereas other artists, whose work requires less attention, and who may ply their trade and amuse themselves with conversation at the same time, have, for the most part, smooth faces."

If then the influence of a man's trade is so powerful as to mould the expression of his features, corresponding changes must be produced in his whole physical structure.

Whether these modifications affect the life-term of the individual —favorably, by increasing the vigor of his constitution and eliminating hereditary taints, or unfavorably, by diminishing his vital energy and entailing disease—depends upon the nature of the pursuit.

As an illustration we refer to the average longevity attained in various occupations, as shown by the following tabular statement of those who died in Massachusetts during the period of one year:

OFFICIAL REGISTRATION REPORT OF MASSACHUSETTS.

Number.	Occupation.	Average Age.	Number.	Occupation.	Average Age.
9,698	Agriculturists,	47.16	359	Masons,	41.61
313	Manufacturers,	44.30	50	Musicians,	40.46
437	Clerks,	33.73	260	Operators,	34.19
6,410	Laborers,	44.57	129	Painters,	36.55
363	Machinists,	37.63	645	Traders,	46.53
408	Mechanics,	42.28	2,486	Shoemakers,	43.66
2,299	Seamen,	45.95			

[Incomplete List.]

In order to ascertain the variation in longevity in different vocations, it will be necessary to group the several occupations into classes, for the sake of comparison and convenience of reference.

I. The Agricultural.
II. The Manufacturing.
III. The Professional.
IV. The Commercial.
V. The Military.
VI. The Seafaring.

◆

THE AGRICULTURAL CLASS.

Agriculture being for the most part carried on in the open air, we are not surprised to find that it is the most healthy of all occupations. Notwithstanding the numerous and important sanitary improvements of modern times, which have resulted in the control of contagious diseases, and the reduction of mortality in our centres of population, a marked contrast is still presented in the longevity of the inhabitants of cities and those who live in agricultural districts, much to the advantage of the latter.

Recent scientific researches have attributed the purity and exhilaration of the country air to a peculiar condition of the oxygen, under the form known as *ozone.* This substance is derived from plants, being evolved from their leaves, and is the life-sustaining principle of oxygen. It is said to be always present in minute proportions in the air, except in large cities or crowded localities, where it is destroyed and disappears. Possessing the properties of a powerful disinfectant, it becomes an active agent in neutralizing the poisonous effluvia produced by animal life and decomposition. Rural districts, therefore, offer the most favorable sanitary advantages of a pure atmosphere, as may be deduced from the influence of such localities upon the expectation of life, as shown by the following table of Neison.

PROBABLE AFTER-LIFETIME, (BOTH SEXES).—SCOTCH LIVES.

Age.	Rural.	Town.	City.	Age.	Rural.	Town.	City.
10	53.05	50.74	42.63	60	16.01	13.12	13.33
20	44.99	42.75	34.58	70	10.65	9.13	8.76
30	37.78	35.03	28.63	80	5.65	5.43	4.81
40	30.30	27.64	22.64	90	3.22	2.76	2.35
50	22.89	20.74	17.38	100	.5	.5	.5

This fact is especially confirmed by the mortality reports, which have been prepared with such an outlay of time and money in Great Britain. From the report of W. P. Dundas, Registrar General, it appears that 185 deaths occurred in the Insular districts of Scotland in 1862; 184 deaths in the Mainland districts—both rural, and 273 deaths took place in the Town districts, for every ten thousand persons in each district. The Registrar General remarks, "If we take the mean mortality of four consecutive years for these several districts, the proportions do not materially differ. Thus the four years' average shows that in every ten thousand inhabitants of each of these districts—

146	deaths	occurred	annually	in	the	Insular,	Rural.
174	"	"	"	"	"	Mainland,	
265	"	"	"	"	"	Town.	

Influences, therefore, prejudicial to health and life, must exist in towns and cities from which the country is comparatively free, and it is the duty of the sanitary enquirer to find out what these agencies are; and this can be greatly aided by referring to correct tables, which indicate the diseases that cut off the population, and the ages when these diseases prove fatal."

The superior longevity of farmers is exhibited by the death rate of the towns and agricultural districts in Scotland and England.

	Scotland.	England.	
Towns	204	220	in every 1,000 persons.
Rural Districts	142	178	" " "

The following schedule of deaths from twelve classes of diseases, taken from the English population returns for one year, is an additional evidence of the greater immunity from disease of the agricultural classes:

Cause of Death.	City Districts. 3,726,221 Pop.	Rural Districts. 3,539,908 Pop.
Epidemic, Endemic, and Contagious,	23,655	13,685
Diseases of the Nervous System,	15,651	8,177
" " Organs of Circulation,	1,301	712
" " Respiratory Organs,	28,973	18,508
" " Digestive "	6,505	3,361
" " Urinary "	417	373
" " Organs of Locomotion,	653	354
" " Integumentary System,	144	66
" " Organs of Generation,	984	547
" " Uncertain Seat,	10,447	10,529
From Age,	7,374	8,874
Violent Deaths,	3,104	2,516
Causes not Specified,	1,811	2,708

The aggregate mortality in the cities amounted to 101,019, while that of the country was only 70,410.

Dr. Curtis, a very competent authority, states that 49.81 per cent. of all those who died in the cities of Massachusetts were under ten years, while in the rural sections 41.11 per cent. of the deaths were under ten. All the mortality records of Massachusetts prove the greater death rate of the cities, as compared with the agricultural parts of that State.

From the facts presented, and indeed also from all authenticated statistical returns, both in this country and Europe, it is well established that the mortality is the highest in cities, and that there is a constant relation between the density of the population and the mortality.

Aside from the favorable conditions of residing in the country, the vocation of a farmer is well calculated to promote health and ensure extreme age. Free from numerous temptations that assail men in crowded communities, suffering fewer cares and anxieties than those of other vocations, and accustomed to wholesome exercise, whereby the different muscles of the body are called into play without any undue strain upon any particular part, he is enabled to withstand the inroads of disease and reach a ripe old age.

Sir John Sinclair remarks that "the great increase of inhabitants in infant colonies, and the longevity of such as follow agriculture everywhere, evidently prove it to be the most healthful of all employments." This is seen by the Registration Report of Massachusetts, where the longevity of agriculturists is compared with that of other industrial pursuits. For convenience the State has been divided into two parts for the purpose of classification, viz.: into Eastern Counties and Western Counties. All persons over twenty years of age have been placed under the vocations which they individually pursued during life.

OFFICIAL REGISTRATION REPORT OF MASSACHUSETTS.

MORTALITY FOR 1 YEAR.

Vocations	Eastern Counties.		Western Counties.	
	Number.	Average Age	Number.	Average Age
Agriculturists, ...	459	65.50 years.	489	64.54 years.
Sailors, ...	235	64.37 "	1	26.00 "
Paupers, ...	51	53.78 "	19	60.73 "
Professional Men, ...	84	50.07 "	39	52.48 "
Mechanics, ...	1,018	46.36 "	349	45.40 "
Laborers,..................	876	43.71 "	246	44.02 "
Public Men, ...	180	43.74 "	35	47.60 "
Merchants, ...	243	42.35 "	47	40.97 "
Total......................	3,146	49.47 years.	1,225	53.05 years.

We see from the foregoing that the average longevity of nearly one thousand farmers was over 65 years—nearly 15 years greater than that of professional men, and nearly 25 years longer than that of merchants. The prospect of long life for the husbandman is evidently the best, far better than for those of more distinguished or more remunerative vocations.

> "From toil he wins his spirits light,
> From busy day the peaceful night;
> Rich, from the very want of wealth,
> In heaven's best treasure, peace and health."

THE MANUFACTURING CLASS.

The injurious influence of factory labor upon the health and morals of persons so employed has been a frequent subject of complaint. It has been alleged that young persons are so affected by the drudgery and confinement of an early apprenticeship to a manufacturing life, that their growth is impaired, their constitutions ruined, and their lives necessarily shortened; while adults, from the same causes, suffer mentally as well as physically. The opprobrious epithet "white slavery" has been applied to the restraints of such industrial operations, and the most exaggerated representations have been circulated concerning the abuses that are said to exist in factories. These statements attracted so much notice in England some years since, that a commission was created to examine into the subject. Much information was elicited respecting the relative effects of different kinds of manufacturing labor upon the health and life of the population.

The healthiest artisans are those who work in the open air, or in open sheds or buildings constructed to admit a free circulation of fresh air. Out-door occupations, such as secure muscular exercise, which tends to expand the chest and the physical frame, cannot fail to be favorable to life. The relative effect of each particular trade varies with the nature of the labor, with the amount of exposure to the air, and the protection from the inclemencies of the weather.

From an examination of the following table, compiled by direction of the House of Commons, the influence of different kinds of labor may be seen.

England and Wales	Number Sick out of every 100.	Average Sickness per Annum to each Person, expressed in Days.	Average Sickness p. Annum to each Sick Person, expressed in Days.	Mortality per Annum.
Light labor, without exposure to weather	21.58	9.54	44.24	1.42
" " with " " "	20.80	8.52	41.00	1.37
Heavy " without " " "	26.54	10.81	40.73	1.38
" " with " " "	28.04	10.65	37.99	1.07

The following vocations are carried on out of doors, or much in the open air :

Baggage-masters
Bill-posters.
Blacksmiths.
Brick-layers.
Brick-makers.
Builders.
Butchers.
Car-drivers.
Carpenters.
Carriage-makers.
Cattle-dealers.
Coachmen
Conductors.
Coopers.
Draymen.
Drovers.
Engineers.
Farriers.
Firemen.
Fishmongers.
Hostlers.
Letter-carriers.
Lumbermen.
Milkmen.
Masons.
Peddlers.
Policemen.
Roofers.
Ship-builders.
Slaters.
Stage-drivers.
Teamsters.
Wheelwrights.

Blacksmiths are usually long-lived, and are remarkably free from pulmonary affections. Working out of doors at all seasons predisposes workmen to inflammatory diseases: Brickmakers, Teamsters, and others of the above class, suffer from such disorders.

Walking being the most natural kind of exercise, and favorable to health, those so employed—such as Letter-carriers—have a good promise of life, if all other conditions favor it. Coachmen and Drivers have little muscular exercise, and are afflicted with gastric disorders, and their lives are frequently shortened from apoplexy and palsy. Butchers, though much in the air, are short-lived, probably from inhaling the effluvia from slaughter houses.

Most of the manufacturing processes are conducted in-doors, where large numbers of operatives are often congregated in badly ventilated rooms. The pernicious influence upon life, of in-door mechanical pursuits as contrasted with out-door labor, is exhibited by the table given below, from the Registration report of Massachusetts, embracing a period of nearly a quarter of a century, from May 1st, 1843, to Jan. 1st, 1867.

MORTALITY STATISTICS.—MASSACHUSETTS.

Occupations.	Number of Persons.	Aggregate Ages.	Average Age.
Agriculturists,	22,764	1,461,288	64.40
Active Mechanics, abroad,	6,893	351,855	51.04
" " in shops,	9,898	474,399	47.93
Inactive " "	10,855	465,594	42.89
Laborers, no special trade,	17,764	825,852	46.49
Agents, abroad,	4,978	172,806	34.71
Sailors,	6,160	279,532	45.38
Merchants, Financiers, Capitalists,	9,220	445,410	48.26
Professional Men,	3,316	166,953	50.35
Females,	4,070	184,431	45.31
All classes of occupations,	95,918	4,829,120	50.34

The average term of life of mechanics working in shops is much shorter than that of those laboring out doors. This arises mainly from the following injurious causes :

1st. From shops improperly ventilated.
2d. From constrained posture of the body.
3d. From inhaling fine particles of working materials.
4th. From inhaling noxious fumes and vapors.
5th. From exposure to a considerable degree of heat.

From Shops Improperly Ventilated.—The importance of a pure atmosphere for the purpose of respiration can hardly be overstated. It has been estimated that 10 cubic feet of fresh air per minute, to each man, is the smallest amount that should be allowed for ventilation. The reduction of the pure air in the workshops sometimes has the effect of undermining the constitution of the artisan by injuring the respiratory organs,—in some cases fevers are generated, and in some instances, as with mining, instant death is produced.

Such trades as those of Barbers, Bookbinders, Brushmakers, Clockmakers, Curriers, Chandlers, Tanners, &c., are not unhealthy unless subjected to the above conditions.

FROM THE CONSTRAINED POSTURE OF THE BODY.—Lord Bacon was of the opinion that it was essential to long life that the body should never abide long in one posture. This rule is constantly violated by all kinds of mechanics; but by some to such an extent as to seriously affect the functions of the system.

Shoemakers, aside from the usual injurious results of a too strict confinement within doors, maintain the sitting posture for many consecutive hours, and thereby induce piles and kindred distressing complaints. In common with other industries, this occupation has received the benefit, which has arisen from the greater attention to diet and dress, demanded by our variable climate, and from the increased knowledge and enforcement of sanitary laws.

The annexed tabular statement, from New England official reports, gives the average age at death of persons employed as shoemakers.

Occupation.	No. of Persons.	Aggregate Ages.	Average Age.
Shoe-makers, ...	6,606	285,887	42.12
Shoe-cutters, ...	190	7,766	40.87
Shoe-binders, ...	37	1,622	43.84

The dark complexion noticeable in shoemakers is caused by an unhealthy secretion of the bile. Tailors, from their usual position while at work, cause their head to be much supported by the muscles of their backs, so that their shoulders are preternaturally drawn back. Though enjoying a freedom from acute diseases, they are liable to consumption. Milliners, Dressmakers, and Seamstresses are unhealthy from the sedentary nature of their work, and from stooping so constantly. Saddlers also stoop much, and are subject to disorders of the digestive organs.

The annexed table furnishes the relative expectation of life of many trades, at particular ages. It is the estimate of Mr. Finlaison, and deduced from very extended observations; but, as many of the mechanics were members of friendly societies, this table gives a very favorable average.

ENGLISH TABLE OF EXPECTATIONS.

	At 20.	At 30.	At 40.	At 50.	At 60.
Bakers,	41.92	34.05	26.58	20.09	14.12
Blacksmiths,	37.96	30.34	23.52	18.11	13.02
Bricklayers,	37.70	29.66	22.22	14.78	8.44
Butchers,	41.60	33.49	26.33	20.32	14.89
Carpenters,	45.28	38.47	31.65	25.07	18.88
Coopers,	38.62	31.17	24.23	18.22	13.23
Dyers,	39.89	32.60	24.73	18.20	13.40
Hatters,	38.91	34.29	27.93	19.87	12.89
Laborers, Town,	40.87	33.65	26.27	19.07	13.33
" Country,	45.32	37.71	29.91	22.18	15.82
Millwrights,	40.32	33.38	27.37	19.60	13.69
Mill-operatives,	38.09	30.45	22.61	15.55	10.61
Miners,	38.22	31.65	24.28	17.82	12.27
Plumbers,	38.13	31.59	24.67	18.24	12.67
Potters,	36.59	30.51	23.80	18.74	13.71
Printers,	36.66	28.86	20.55	14.67	12.04
Sawyers,	40.02	33.06	26.05	18.04	13.11
Servants,	42.03	34.30	27.32	20.77	14.81
Shoemakers,	40.87	33.99	26.23	19.04	13.05
Spinners,	39.04	32.42	24.32	16.62	12.21
Stone-masons,	38.19	30.41	24.16	18.15	14.70
Tailors,	39.40	32.51	25.34	18.31	10.23
Weavers,	41.92	35.55	28.53	22.01	15.61
Wheelwrights,	40.97	33.87	27.54	19.41	13.84
Wool-combers,	38.56	33.73	25.96	17.64	13.22

Printers have the shortest expectation, in the preceeding table. From throat and lung diseases they are frequently sick. Out of 100 readers a London physician records an average sickness of 14.5 days per man for the year. Their mortality as compared with farmers is:

Printers, between the ages of 35 and 45=1.747; from 45 to 55=2.367.
Farmers, " " " .805; " " 1.145.

FROM INHALING FINE PARTICLES OF WORKING MATERIALS.—Popular lecturers have of late years brought to the notice of the public the influence of dust upon disease, a fact long since known to medical men. They have shown that minute scraps of working materials, with which the atmosphere of manufacturing districts is loaded, are absorbed by respiration: coal dust from the vicinity of collieries; sand and stone from quarries; cotton from factories. The injurious consequences of inhaling these substances is fully described in the following report of John Leigh, registrar of sub-district, Manchester:

"The mechanical influence of certain occupations in causing disease has not been sufficiently estimated here. The dust continually given off in fustian-cutting, cotton-carding, and similar occupations, and inhaled, and, in a minor degree, the fuliginous particles with which the atmosphere is so generally loaded, are constant exciting causes of bronchial irritation. When received into the lungs they irritate the bronchial membrane, whose secretion is increased in the pulmonary structure, causing permanent irritation, partial consolidation, extensive emphysema, chronic bronchitis, and ultimately *death*. It is a common thing to find the bronchial glands and the pulmonary tissue perfectly black and inky, from the presence of carbonaceous matter. And those that work at the occupations specified above, to a man, have emphysema after a few years.

M. Pattissier, in his "*Traite des Maladies des Artisans*," says, "Ils sont souvent obligee de changer de profession, pour prevenir la phthisie." (They are often obliged to change their business to avoid consumption.)

The incipient stages of the spinners' phthisis is described by a surgeon in charge of a dispensary at Manchester: "In the commencement of the complaint, the patient suffers a distressing pulmonary irritation from dust and filaments, which he inhales. Entrance into the atmosphere of a mill immediately occasions a short dry cough, which harasses him considerably in the day, but ceases immediately after he leaves the mill and inspires an atmosphere free from foreign molecules. These symptoms gradually become more severe; the cough is at length very frequent during the day, and continues even after its employments have ceased, disturbing the sleep and exhausting the strength of the patient."

It was the opinion of several English Factory Commissioners, that the most injurious factories were the flax mills. Woolen manufactories are the most healthy, and when proper attention is paid to cleanliness, ventilation, &c., no ill effects are experienced by operatives in this material.

Tool-makers, knife and needle-grinders are short-lived. They are subject to a disease peculiar to themselves, known as the grinder's rot, a sort of hasty consumption. Machine-making and filing is an unhealthy vocation, occasioning bronchial disorders. Steel dust is more injurious to the system than iron.

Stone and marble cutters, quarrymen, and masons, are trades unfavorable to health and longevity. Turners are very liable to consumption, especially those working with dark woods like mahogany or black-walnut. Workers in artificial flowers, and the like, suffer from feathers entering the air tubes. Millers, hatters, and paper-makers, are sickly from pectoral affections, and their lives are abbreviated in consequence.

The tendency of inhaling dust of all kinds, to induce phthisis and diseases of the respiratory organs, has been shown, as above, in particular branches of manufactures; its general effects may be inferred from a statement of Dr. Playfair, who says that these diseases exist to a greater extent in the large manufacturing districts of Lancaster and Cheshire, than any other part of the kingdom.

From Inhaling Noxious Fumes and Vapors.—Many of the industrial arts require the use of substances which are not only injurious to health, but often fatal to life. Mineral poisons can be as effectually taken into the system by breathing their fumes as by swallowing them. Their action is cumulative, and the evil effects of the gradual absorption of minute doses are not felt for some time.

Miners and colliers are a very short-lived class. Their risk of life from accidents, suffocation, and inundations, is very great. It has been estimated that 1,000 lives, from casualties, are annually sacrificed in collieries. Miners are also exposed to injury from gases—carbonic oxide, hydrogen and carbonic acid—as well as disease from the metals or minerals that they extract: colic and dysentery from copper, asthma from coal, &c. Other artisans are similarly affected by poisonous gases: gas-workers by sulphuretted hydrogen; wool-combers by carbonic acid, &c.

Metal-workers suffer in like manner. Brass is highly injurious, being an alloy of copper and zinc, which cannot be melted without losing part of its zinc in the form of vapor, a deleterious substance. Braziers are made unhealthy by the same exhalations from solder.

In gilding, mercury—amalgamated with gold and silver—is employed. When the mercury is removed by heat the workmen suffer from the volatilized metal, and salivation and purging are induced. Some of the processes of bronzing are accomplished with the aid of solutions of mercury and arsenic. Dyers and bleachers use a variety of unhealthy pigments. In printing calicoes, the salts of tin are extensively used as a mordant. Arsenic acid has of late years been substituted for tartaric acid on account of its cheapness, and also to produce the beautiful magenta color by its action on aniline. Scheele's green, an arsenite of copper, is a coloring for silks and feathers. King's yellow (another dye made from arsenic), oxalic acid, sulphate of zinc (white vitrol), and chromate of lead (chrome yellow), are among the deadly poisons of such trades. Painters follow a calling that undermines their health. It is a noticeable feature that an old painter is rarely seen. The different preparations of white lead cause a disease common to this class, called the painters' colic. It is simply lead poisoning and is often followed by palsy. White lead is most generally used for painting wood white, as it mixes with oil and imparts a uniform color. So dangerous are its poisonous properties, however, that the average life of those employed in mining this article is said not to exceed three years. Potters are paralyzed from the lead used in glazing, besides being affected by the dust absorbed through their skin. Arsenic, mercury, and verdigris, form the principal constituents of several varieties of paint. Plumbers inhale the oxide of lead and are not usually strong, nor are gas-fitters. Tinsmiths are liable to injury from the fumes of the solder, and of muriate of ammonia. Druggists, chemists, and workmen in laboratories are rendered sickly from the gaseous exhalations of poisonous drugs, as well as from handling and mixing such articles (?). Brewers and distillers, though presenting a robust and healthy appearance from their florid complexions and corpulent figures, are often affected with diseases of the circulatory organs, and usually die young. This is due partly to the disengagement of carbonic acid during fermentation in the brewers' vats, the accumulation of which is sometimes attended with fatal results; but also to the constant indulgence in the beverages they manufacture. In most large breweries new liquor is regularly dispensed to the workmen to prevent their tapping the older and choicer brands.

From Exposure to a Considerable Degree of Heat.—The most natural temperature for the body is an atmosphere of from 50° to 70° (Fahr.), and when this is exceeded lassitude and debility are the consequences. Bakers, cooks, confectioners, sugar-refiners, and the smelters of ores, are all subjected to a higher temperature than is natural to the human frame, which diminishes their vigor and engenders disease. They are particularly sensitive to changes in the weather, and are liable to sudden chills. Operators in the manufacture of cloth have to undergo a temperature of 125° in the dry-house. Wool-combers often work in an atmosphere heated to 180°. Glass-workers are subjected to a very intense heat.

The following table contrasts the average life term of the manufacturing community with that of other occupations. It is the aggregate and averages of upwards of 1,000 men who died in the city of Boston during one year. This table is useful only for comparison, and not as any standard of longevity; for the influence of locality and other causes may have affected the mortality of the trades unequally.

MORTALITY RATE IN CITY OF BOSTON.—OFFICIAL REGISTRATION REPORT.

Trade or Profession.	No.	Ages Ranging.	Aggregate Ages.	Average Age.
Blacksmiths, ...	14	21 to 78	564	40.28
Bakers, ...	4	21 " 35	118	29.50
Barbers,..............	4	17 " 77	174	43.50
Clerks, ...	41	16 " 72	1,222	29.80
Carpenters, ...	35	18 " 77	1,568	44.80
Cabinet-makers, ...	6	22 " 94	281	46.83
Coopers,..............	6	35 " 57	292	48.66
Clergymen, ...	3	53 " 68	182	60.66
Farmers, ...	4	46 " 81	241	60.25
Grocers,..............	6	27 " 84	295	49.16
Gentlemen, ...	10	28 " 76	605	60.50
Mariners,.............	62	16 " 73	2,245	36.20
Merchants, ...	26	22 " 89	1,238	47.61
Masons, ...	12	19 " 74	575	47.91
Laborers,.............	408	16 " 78	15,969	39.13
Printers, ...	15	21 " 78	498	33.20
Painters, ...	17	27 " 71	750	44.11
Physicians, ...	8	34 " 79	418	52.25
Shoe-makers, ...	14	18 " 65	670	41.87
Ship-carpenters, ...	6	30 " 80	320	53.33
Stone-cutters, ...	4	21 " 59	175	43.75
Tailors,...............	31	19 " 65	1,126	36.32
Teamsters.............	19	21 " 65	702	36.94
Traders,..............	19	24 " 72	849	44.68
Tinsmiths, ...	5	19 " 38	151	30.20

Besides the causes enumerated, which hasten vital decay, there are others connected with almost every branch of manufacture, which affect the average of life. Glass-blowers, for instance, injure their lungs from the excessive pressure upon those organs; hernia, with porters, is the result of straining and lifting heavy weights; &c. Consumption, it is estimated, annually carries off 36,000 persons, in England and Wales; more than half of whom die in London.

THE PROFESSIONAL CLASS.

The following tabular exhibit of the average age at death of different classes of professional men furnishes a good comparison of the longevity of each:

OFFICIAL REGISTRATION REPORT OF MASSACHUSETTS.
FROM MAY 1st, 1843 TO DEC. 31st, 1866.

Professions.	Number of Persons.	Aggregate Ages.	Average Age.
Architects, ...	6	282	47.00
Artists, ...	101	4,564	45.19
Civil Engineers, ...	65	2,723	41.89
Clergymen, ...	609	35,193	57.79
Comedians, ...	24	873	36.38
Dentists, ...	66	2,642	40.03
Editors, ...	41	1,819	44.37
Judges, ...	13	863	66.38
Lawyers, ...	445	25,023	56.21
Musicians, ...	165	6,560	39.76
Physicians, ...	820	45,794	55.84
Professors, ...	30	1,682	56.07
Public Officers, ...	307	16,646	54.22
Students, ...	202	4,754	23.53
Surveyors, ...	63	3,192	50.66
Teachers, ...	359	14,343	39.95
Total, ...	3,316	166,953	50.35

It will be perceived by a reference to the table, that the average longevity of the learned professions: judges, clergymen, lawyers, professors, and physicians, exceeds the mean (50.35 years) of other professional classes. The average ages at death of these are given respectively, as above,—66.38, 57.79, 56.21, 56.07, 55.84,—and when compared with a similar table of registration, (see Manufacturing Class,) compiled from the ages at death, of nearly 100,000 persons of all vocations, shows the greatest average of longevity, next to farmers.

Dr. Guy has compiled a table of the average age of persons of various occupations dying at 51 years and upwards, which is only useful for comparison, as it is based on limited data.

GUY'S TABLE OF AVERAGE AGE AT DEATH FOR VARIOUS OCCUPATIONS.

[JOURNAL OF STATISTICAL SOCIETY.]

	Average Age.		Average Age.
Clergy, ...	74.04	Aristocracy, ...	71.69
Gentry, ...	74.	Army, ...	71.58
Physicians, ...	72.95	Foreign Literature, ...	71.44
Lawyers, ...	72.78	Fine Arts, ...	71.15
Navy, ...	72.62	Painters, ...	70.96
Trade and Commerce, ...	72.32	Chemists, ...	69.51
Literature and Science, ...	72.10	English Literature, ...	69.14

He has also framed a table to show the relative longevity of the more and the less distinguished members of the same profession:

Clergymen,	more distinguished	66.42 years;	less distinguished	69.49 years
Lawyers,	" "	65.51 "	" "	68.41 "
Physicians,	" "	67.04 "	" "	67.31 "
Literary and Scientific,	" "	65.22 "	" "	67.55 "
Artists,	" "	64.74 "	" "	65.96 "

Although this table is in accordance with the popular fallacy, that the eminent and gifted "are all brain and no muscle," a weak sickly class, we believe that, with professional men, the more talented as a rule outlive their less gifted brethern. In support of this opinion we cite the authority of Francis Galton, who has made extensive researches among the lives of eminent men of various types. He remarks, "I conclude that among the gifted men there is a small class who have weak and excitable constitutions, who are destined to early death, but that the remainder consists of men likely to enjoy a vigorous old age."

CLERGYMEN.—It appears from an examination of the tables that clergymen enjoy a good prospect of attaining old age. However self-denying may be their attendance at the sick-bed, they are not constantly brought into contact with disease like the physician, and the chances of loss of life from contagion are less.

Their religious profession, to say nothing of the requirements of society, forbid excesses of any kind, and it must in fairness be stated that, as a general rule, they are examples of moderation and temperance.

The clerical profession, however, labors under some disadvantages inimical to health. Whatever may be the talents of a clergyman, his acquirements and industry, he is limited to a fixed small salary, which (if we disregard a few exceptional cases in our large cities,) is barely sufficient for the supply of present wants. He is consequently unable to make any provision for the support of his family in the event of his decease.

No organization, of whatever denomination, can be considered complete in which no place is found for its decaying and superannuated ministers. Why should gray service in the clerical profession be treated with less consideration than is shown to a metropolitan policeman, who is attended to when sick and pensioned when retired. The Methodist organization contains the admirable feature of a systematic partial provision for this class of ministers.

But there would seem to be a peculiar propriety in the ministry being rendered more eligible, and their families benefited by the system of general life insurance. To one of the members of this profession Life Insurance owes its origin as a modern institution among those who speak the English language. A Bishop of Oxford formed the first life insurance company in Great Britain, a charter for that object having been granted him and his associates, on the 25th of July, 1706. The company was known as the Amicable Society. Of the extent of the ignorance which then prevailed regarding this subject, we may judge from the fact that none were admitted to the benefits of this company below the age of 12, nor above the age of 45, and that the premiums were the same for all ages. Extraordinary as it may appear, the company continued to exact the same rates of premium on all ages within the limit stated, for one hundred years after its establishment, notwithstanding the obvious truth that the rates of contribution should vary according to the liability to decease of those insured.

A somewhat similar organization of the clergy of the Episcopal church exists in this country, known as "The Clergyman's Mutual Insurance League." Upon the decease of any member of the league, each of the surviving members is assessed two dollars, and the proceeds of this collection is paid to the heirs of the deceased member. The injustice of such a system is so evident that comment is unnecessary. From the treasurer's report for the year ending Sept. 15th, 1871, it appears that the families of six clergymen who died had received the sum of $9,252, or about $1,542 each, a sum entirely inadequate to afford complete relief. We cannot leave this part of our subject without a reference to the duty of clergymen themselves as connected with it. They belong to that numerous class whose incomes are dependent upon their personal exertions, in other words, upon life—of the uncertainty of which no pulpit is silent. Now, no intelligent nor candid person will deny that this truth should be inculcated upon all proper occasions, or that the sermons of the preacher should enforce the lessons of daily experience. But, after all, example is more powerful than precept. No sermon, however eloquent, will leave such an impression of the uncertainty of life, or of a clergyman's own convictions of it, as for him to insist that his own life—brief when extended to the longest span—should be insured by the church, since his limited salary and the many demands upon it may have prevented him from doing it himself. Bishop Clark, of Rhode Island, in a recent speech to the Episcopal Convention, urged the laity to insure their rectors' lives, "because," said he, "not one clergyman in fifty is able to save anything for the support of his family after death."

The "Year Book " of the N. Y. *Observer* furnishes some reliable data for computing the comparative longevity of the profession in this country. Under the heading of "Decease of American Clergymen" in 1870 and 1871, is embraced an enumeration of all those who died among the different denominations, (both Protestants and Catholics,) with their respective names, ages, place and date of death. From this the following table is deduced:

TABLE OF LIFE-TERM OF AMERICAN CLERGYMEN.

For Years 1870 and 1871.	Between Ages of 20 & 30.	30 & 40.	40 & 50.	50 & 60.	60 & 70.	70 & 80.	80 & 90.	90 & 100.
No. of Deaths,...	15	41	38	74	85	97	49	7
Average Age,....	27.1	34.4	44.9	55.	64.2	74.2	83.5	92.1

Of 406 clergymen who died, 153 (or more than one-third) had survived three score years and ten. The most advanced ages were usually attained by those of the Presbyterian denomination. The above table certainly speaks well for a minister's promise of life; and though it does not include many whose ages could not be ascertained, may nevertheless be regarded as a fair standard.

Judges.—Statistics, as well as popular opinion, assign to members of the bench more than ordinary longevity, and we have every reason for believing that the influence of such a life conduces to old age. The tenacity of life of Scotch judges is proverbial; and their English neighbors of the judiciary appear to be equally fortunate:

"The majority of the judges belong to a strongly-marked type. They are not men who are carried away by sentiment, who love seclusion and dreams, but they are prominent members of a very different class, one that Englishmen are especially prone to honor for at least the six lawful days of the week. I mean that they are vigorous, shrewd, practical, helpful men; glorying in the rough-and-tumble of public life, tough in constitution and strong in digestion; valuing what money brings, aiming at position and influence, and desiring to found families. The vigor of a judge is testified by the fact that the average age of their appointment in the last three reigns has been fifty-seven. The labor and responsibility of the office seem enormous to lookers-on, yet these elderly men continue working with ease for many more years. Their average age at death is seventy-five, and they commonly die in harness."

Lawyers.—There would seem to be nothing inconsistent with longevity in the legal profession, and yet an idea prevails with many that lawyers are short-lived. Blackstone has drawn an unflattering picture of the pursuit in which he achieved such eminence.

It is undoubtedly an arduous vocation, requiring much study and unremitted attention, which may break down the infirm or diseased; but the average expectation of life does not differ much from that of physicians.

Mr. Whisham has computed the following averages based upon the obituaries among the members of the English bar for a period of twenty years:

26 years and upwards,	62.11
31 " "	64.09
41 " "	67.35
51 " "	70.89

With the "Faculty of Advocates," of Edinburgh, the longevity is greater than that of any other profession. In Massachusetts, however, the averages of lawyers and physicians differ but little.

PHYSICIANS.—A more than ordinary interest attaches to the medical profession, which, from the earliest periods and in all communities, has occupied a position not inferior either in public consideration or practical usefulness to any other.

It would seem not unreasonable to conjecture that the skill and knowledge Medical men so often generously exert for the benefit of others, would inure to themselves, and that the medical class, as compared with other professions, would exhibit a lower average rate of sickness and mortality.

The relative mortality of the medical staff of the U. S. Army and that of other officers has been determined from statistics compiled from 1832 to 1860, and is exhibited by the following table:

MORTALITY OF MEDICAL STAFF—UNITED STATES ARMY.

OFFICIAL STATISTICS.

	Average Annual Strength.	Ratio per cent. Deaths, ordinary and accidents.	Ratio per cent. Deaths, Killed and Wounded.	Total Deaths, per cent.
Medical Officers, .	85	2.40	0.08	2.49
Other Officers, . . .	821	2.44	0.40	2.84

A table of the expectation of life of physicians has been constructed from the ages of 850 medical men, selected by M. Du Bois from an historical dictionary, and compared with the expectation of the English population, with which it nearly agrees. Such data however, as that derived from biographies, is too limited to give accurate results.

EXPECTATION OF LIFE WITH PHYSICIANS.

Ages, ...	40	50	60	70
Physicians,.....	27.14	19.96	13.74	9.04
English Pop., ..	26.57	20.03	13.59	8.52

The following table of Neison is valuable, being derived from the records of a celebrated Medical Society:

MORTALITY AMONG THE MEMBERS OF THE ROYAL MEDICAL AND CHIRURGICAL SOCIETY

Age	Number Exposed to Risk	Mortality, per cent.	Deaths—England and Wales				
			At each Term of Life	Total	Mortality, per cent.	Deaths that would have happened at each Term of Life.	Total.
26 to 30	2198.0	0.400	9	..	0.998	21.9	...
31 " 35	2190.5	0 630	14	23	1.063	23.3	45.2
36 " 40	1353.5	1.477	20	43	1.157	15.7	60.9
41 " 45	811.5	1.355	11	54	1.319	10 7	71.6
46 " 50	578.5	1.383	8	62	1.560	9.0	80.6
51 " 55	410.0	4.146	17	79	1.935	7.9	88.5
56 " 60	200.0	3.500	7	86	2.529	5 1	93.6
61 " 65	74.0	8.108	6	92	3.474	2.6	96.2
66 " 70	18 0	2.222	4	96	4 947	0.9	97.1
	7834.0	1.225	96	..	1.239	97.1	...

From an analysis of the above we see that throughout the period of life, (between the ages of 26 and 70), the mortality among the members of this society approximated very closely to that of the male population of England and Wales, being considerably less between the ages of 26–35, somewhat higher above 35 years of age, but in the whole term of life, varying from 26 to 70 years of age, the mortality differs but little; the actual number of deaths in the society being 96, while that which would have taken place according to the mortality of England and Wales is 97.1.

Prof. Casper, of Berlin, has compiled a table of averages for German physicians

26 years and upwards, average,	58.00
31 " " " "	59.27
41 " " " "	63.82
51 " " " "	68.21

Few physicians survive to an extreme old age, but as a class they enjoy a comparatively long career, despite the risks of contagious diseases, and the arduous nature of their duties.

Mortality statistics among the married and single of this profession demonstrates conclusively the superior longevity of the former. A large proportion of doctors marry, and the influence of marriage upon life is of course greater than with other occupations, where the disproportion between the married and single is less.

Scientific Pursuits.—It is characteristic of the later periods of life that neither the mind nor the body can endure the weight which in earlier years is so easily borne. The habits become so fixed that any departure from them, however reasonable or even necessary, becomes an annoyance. Trifling causes of irritation are magnified into matters of importance, or unduly dwelt upon, and the mind incapable of resisting serious evils, is often permanently impaired by them. But it may with truth be stated that if professional men, in common with the rest of mankind, are assailed by annoyances, the enjoyment derived from scientific investigations enables those interested in such studies to bear their ills of life with comparative tranquility.

The following table of M. de Chateauneuf contains the average ages at death of members of the French Academy of Science, during a period of a century and a half:

26 years and upwards, average,	68.84
31 " " " "	69.20
41 " " " "	70.42
51 " " " "	72.47

As an evidence that scientific pursuits are not incompatible with old age, we annex the names of some celebrated men distinguished for longevity, with their respective ages at death. These instances are not, however, intended as furnishing any standard of longevity of those whose time has been mainly occupied with purely scientific studies:

Bacon, 78.
Buffon, 81.
Cassini, 87.
Celsius, 86.
Euler, 76.
Galileo, 82.
Halley, 86.
Herschell, 84.
Humboldt, 90.
Jussien, 88.
Franklin, 85.
La Place, 77.
La Lande, 75.
Lowenhoeck, 91.
Leibnitz, 70.
Newton, 84.
Volta, 82.
Whiston, 95.

We add some obituaries of scientific persons who have died within a few years:

Boucher, French Archæ. Geologist,	Aug. 3d,	1868,	aet.	80.
Brewster, Scotch Physicist,	Feb. 10th,	"	"	87.
Brougham (Lord), English Philosopher,	May 9th,	"	"	89.
Crawford, English Ethnologist, &c.,	May 15th,	"	"	85.
Jesse, English Naturalist	April,	"	"	88.
Baber, English Scholar,	March 28,	1869,	"	94.
Barkingie, German Physiologist,	July 28th,	"	"	82.
Ruchenbach, German Naturlist,	Jan. 19th,	"	"	81.
Roget, English Physicist,	Sept. 17th,	"	"	90.
Welcher, German Philologist, &c.,	Jan.	1870,	"	84.
Strong, American Mathematician,	Feb. 1st,	1869,	"	79.
Ewebank, American Engineer, (English birth),	Sept. 15th,	1870,	"	79.
Babbage, English Mathematician,	Oct. 20th,	1871,	"	99.

Astronomy ranks the highest in the relative scale of scientific studies as affecting longevity. Out of 85 persons distinguished as astronomers—

20 died under 60 years of age.
17 " between 60 and 70 years of age.
25 " " 70 " 80 " "
18 " " 80 " 90 " "
5 " " 90 " 100 " "

Civil Engineering, Surveying, &c., are professions which tend to prolong life, when the conditions are such as to allow those persons so employed to be much in the air.

Close application to study, draughting, or confinement to offices, diminishes the expectation of life through impairment of health, unless these habits are governed by moderation.

Literary Professions.—Few occupations engender so many bodily infirmities, as those devoted to literature. "When I consider the physical structure of man," said Frederick the Great, "it appears to me as if nature had formed us rather to be postillions, than sedentary men of letters." The most exhausting labor of such pursuits is that undergone by those engaged in the composition of original works, in which the imagination, rather than the reason, is chiefly taxed, and who depend for their support upon the uncertain and precarious remuneration of such toil. Many instances have been cited to prove that the life of an author is not necessarily an unhealthful one, or that it is unhealthful only when carried to an extent transcending the natural powers of the mind or body to sustain them, or when connected with other imprudencies, dissipation, or some hereditary infirmity of constitution. Our enquiries, however, are not directed so much to individual and exceptional cases as to the general class. The fact still remains, that the evils incident to a literary life are neither few nor inconsiderable; in many cases they are unavoidable, and, in general, prejudicial to health and longevity. Poverty and authorship have long been companions, and it has been shown that the poor are placed in a less favorable condition for length of days than those to whom fortune has been kinder. Harassing cares and peculiar disappointments always beset the lot of him whose daily bread depends upon his mental labor. No man of the 17th century was better entitled to speak of the literary profession than Dr. Johnson, whose life for twenty-five years was spent in "as complete dependence on literary labor as is to be found in the history of letters." Out of the depths of his own mournful experience did he exclaim:

> "And see what ills the scholar's life assail—
> Toil, envy, want, the patron and the jail."

Another distinguished writer, speaking from his own experience, describes the effect of this kind of labor upon him who is so luckless as to be dependent upon it: "Broken rest, tasteless meals, and causeless anxieties, shorten his life or render it unfit for active employment; prolonged vigils and intense application still further contract his span, and make his life glide insensibly away."

The statistics of the duration of life in any of the literary classes confirms this melancholy testimony. Take the poets for example, some of whom have filled the whole earth with their song:

Akenside, 49.
Burns, 38.
Byron, 36.
Coleridge, 62.
Cowley, 49.
Cowper, 69.
Dante, 50.
Dryden, 69.
Goldsmith, 44.
Gray, 55.
Hemans, 45.
Keats, 24.
Logan, 40.
Milton, 66.
Rockwell, 24.
Thomson, 48.
Tasso, 52.
Southey, 69.
Spenser, 46.
Shenstone, 50.
Wordsworth, 60.

All poets, D'Israeli tells us, resemble one another, as do all painters and all mathematicians, in that peculiar cast of mind which fits them for excellence in their respective pursuits. Besides, almost everyone's recollection of the lives of the poets will suggest illustrations of the fact, that acute sensibility and ardor of temperament—encountering more disappointments and leading to more irregularities—have an unfavorable influence on length of days.

Literary men shorten their lives, not so much through excesses as by the disregard of those things which are essential to health. The want of exercise enfeebles their digestive organs. Indeed it has been asserted that the capacity of the mind could be estimated by the delicacy of the stomach; and Celsus has ascribed to all literary men weak stomachs: "imbeciles stomachos omnes pene cupidi litterarum sunt."

ACTORS.—There is a prevalent notion, which however derives no support from fact, that there is something unfavorable to longevity in the dramatic profession. Wood, who in his seventy-sixth year gave us his personal recollections as an actor and manager of the Philadelphia stage, alludes to this general but erroneous impression: "I am frequently congratulated," he says, "on my green old age, and seldom without some allusion to its exceptional character, to the proverbial shortness of actors' lives." Some confusion of ideas upon this subject is undoubtedly due to our sometimes confounding two things quite distinct from each other—the mimic and the real life of the actor, his career on the stage and the term of his natural life.

The duties of an actor require an average study each day of from two to four hours, a rehearsal of two hours, and a nightly performance of from two to four hours. These duties necessitate regular habits and the care of health, if life is to be complete. Their performance combines exercise of the limbs with that of the throat and lungs, so that, from causes properly professional, actors are not often sick. It is very rarely that there is any alteration in the programme of performances on account of sickness of actors, while theatres often "run" a whole season without any change of parts. Experience has shown that even "the exposure on the stage, though often severe at the time, probably tends in its constancy to harden the constitution." We give below a list of fifty-three eminent actors, both of the English and American stage, with the age to which they respectively attained:

Hilson, 50.
Booth, 56.
Blake, 58.
Wood, Mrs., 58.
Burton, 60.
Jefferson, 62.
Warren, 62.
Oldmixon, Mrs., 62.
Mellon, Miss, 62.
Garrick, 64.
J. Kemble, 65.
Barrett, 66.
S. Smith, 68.
Francis, Mrs., 68.
Mattocks, 68.
Incledon, 68.
Davenport, Mrs., 70.
Pitt, Mrs., 70.
Brinton, Miss, 70.
Fawcett, 70.
Wroughton, 70.
Knight, 70.
Farren, Miss, 70.
Placide, 70.
Darley, Mrs., 71.
Bensley, 71.
Bannister, 71.
Wallack, 72.
Johnstone, 72.
Morris, Mrs., 73.
Vernon, Mrs., 73.
Thayer, 73.
Quin, 73.
Betterton, 74.
Munden, 74.
Richings, 74.
Bernard, 74.
Murphy, 75.
King, 75.
Dibdin, 76.
Gibbs, Mrs., 76.
Siddons, Mrs., 76.
Pope, Miss, 76.
Glover, Mrs., 77.
C. Kemble, 79.
Holland, 80.
Braham, 82.
Quick, 83.
Smith, 83.
Moody, 85.
Cibber, 86.
Yates, 95.
Macklin, 108.

Their average life, according to this list, presents a too favorable view. This is unavoidable, as the range of selection is necessarily confined to performers sufficiently distinguished to make their lives the subject of biography. These, whether male or female, usually excel the inferior stage artists, too obscure for any record, not more in their performances than in bodily strength and vigor.

Artists.—The cultivation of the fine arts has a refining influence upon the mind, which increases the enjoyments of a life of repose. The beneficial effects of a tranquil career is observable in the case of the painters, whose existence is often prolonged beyond the limits of a more active profession. Gould's Dictionary of Artists, containing the names of nearly 1,200 painters, gives the following summary of their ages at death:

474 died under 60 years of age.
250 " " 70 " " and over 60 years.
243 " " 80 " " " " 70 "
134 " " 90 " " " " 80 "
10 " " 100 " " " " 90 "
1 " over 100 " "

These examples would furnish an average longevity of 55 years to each, nearly ten years greater than the average expressed in the Massachusetts table, extending over a period of about 24 years.

Intemperance is a failing of men of highly imaginative minds, from which artists are not exempt. To this cause, and not to any thing connected with the profession, must be ascribed the low average (45.19 years) referred to above, as found in Massachusetts. It has already been shown that the consequences of drinking are more serious among professional than among less intellectual pursuits.

Brent's table of averages for Artists, based upon Pinkerton's Dictionary, contains 876 names, viz.:

26	years	and upwards,	50.34
31	"	"	50.79
41	"	"	52.16
51	"	"	53.25

This is a much lower average than the table of Major James Bell:

			Fine Arts.	Painters.
26	years	and upwards,	64.42	63.86
31	"	"	65.96	64.46
41	"	"	68.21	67.75
51	"	"	71.15	70.96

With painters it certainly cannot be said that the less distinguished outlive the more famous, if we judge from the following instances:

Vecelli, "Titian," died of the plague, aet. 99.
Bellini, aet. 90.
Gelee, "Claude Lorraine," aet. 82.
Murillo, aet. 72.
Ostade, aet. 75.
Teniers, aet. 84.
Buonarotti "Michael Angelo," aet. 89.
Robusti, "Il Tintoretto," aet. 82.
Velde, aet. 73.

Musicians.—Musical genius is remarkable for its early development; and success is often achieved by eminent performers in childhood. Mozart played brilliantly at the age of four years, and commenced his compositions before he was six years old. Meyerbeer ranked among the best musicians of Berlin, when he was a child of nine years. Beethoven published his compositions at the age of 13; and Mendelssohn at 15. Handel, at nine years of age, commenced the composition of music for the church service, for voices and instruments, and before he had reached his 15th year had composed three operas. Haydn, Ole Bull, and a number of other illustrious musicians were distinguished for like precocity.

As a consequence of this early maturity of musical genius, we should look for a correspondingly premature decay. And such we find to be the case; for although some eminent composers have had a comparatively long career, as a class their average longevity is small. Take for example some recent obituaries:

Gottschalk, Composer and Pianist,	Died Dec. 18th, 1869, aet. 40	years.
Berlioz, French Composer,	" Mar. 9th, 1869, aet. 65	"
Anschutz, German Composer,	" Dec. 30th, 1870, aet. 58	"
Balfe, Author of "The Bohemian Girl,"	" Oct. 20th, 1870, aet. 62	".
Bassini, Composer and Teacher,	" Nov. 26th, 1870, aet. 58	"
Wely, Organist and Composer,	" Jan. 9th, 1870, aet. 52	"

They compare very unfavorably with the longevity of their contemporaries in other professions, as exhibited in the obituaries of the same year.

Musical performers are usually neither robust nor healthy. Pianists, violin-players, and musicians who use stringed-instruments, by their frequent attendance at public assemblies, in the heated and vitiated atmosphere of crowded rooms, and exercised in a way which is not only exhausting, but which subjects them to a constrained position—enfeeble their constitutions.

The use of wind instruments is still more injurious, and results in affections of the heart. When blowing violently the exertion of the lungs necessitates a rigidity of the muscles of the chest, which reacts upon the heart. Singing, too,—although like public speaking, healthful—unlike declaiming, is exhausting unless exercised in moderation. Vocal performers, though accustomed to the exercise of their voice, are easily fatigued.

The average of the Massachusetts table is only 39.7 years, and this, from statistics collected for nearly a quarter of a century, appears to be the mean duration of their lives.

THE MILITARY CLASS.

The profession of arms is necessarily a perilous one, not only on account of the dangers of battle, but also from the sickness and disease occasioned by the vicissitudes, exposure, and other hardships that are incidental to War. Only the robust and healthy are selected for the military service. In this country the regulations of the army require that "in passing a recruit, the medical officer is to examine him stripped, to see that he has free use of all his limbs; that his chest is ample; that his hearing, vision, and speech are perfect; that he has no tumors, nor ulcerated nor extensively cicatrized legs; no rupture nor chronic cutaneous affection; that he has not received any contusions or wounds of the head, that may impair his faculties; that he is not a drunkard; is not subject to convulsions; and has no infectious nor other disorder that may unfit him for military service." After making this rigid physical examination, the surgeon is obliged to certify on honor that the recruit is "free from all bodily defects and mental infirmity, which would in any way disqualify him from performing the duties of a soldier."

The subjoined table shows the different trades and vocations of candidates examined for the U. S. Army, the number respectively passed or rejected, with the specific disability of each person. Of 8,000 examined—4,885 were enlisted, and 3,115 were rejected:

STATISTICS OF THE RECRUITING SERVICE U. S. ARMY.

Causes of Rejection of Recruits.	Laborers	Farmers.	Bakers, Saddlers, and Weavers.	Clerks, Students and Teachers.	Blacksmiths and Metal Workers.	Shoemakers.	Tailors.	Carpenters and Wood-workers.
Number....	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Not Robust....................	51	27	50	42	23	64	61	35
Unsound Constitution..........	27	38	43	40	31	29	33	27
Imbecility....................	29	40	8	20	16	16	6	14
Intemperance	49	35	29	33	45	53	57	32
Lax Abdominal Rings........	21	9	3	3	1	3	2	2
Hernia........................	17	14	23	10	16	14	14	19
Varicose Veins................	68	69	78	64	83	38	37	69
Hemorrhoids....	18	10	8	27	9	19	9	9
Venereal Disease..............	6	20	6	17	9	8	14	11
General Malformation..........	29	25	46	28	25	28	18	22
Chest "	16	32	19	41	17	30	19	13
Injuries, Fractures, &c..........	25	29	26	13	24	19	22	29
Tumors......................	5	6	3	2	3	2	5	6
Diseases of the Bones.........	4	9	6	9	12	6	4	4
" " Skin...........	12	12	16	15	12	9	12	5
" " Chest..........	2	6	2	6	2	3	3	5
" " Heart..........	1	0	5	5	2	4	3	0
" " Eyes and Ears..	25	24	20	26	13	11	14	7
" " Glands	11	11	10	11	7	9	15	8
" " Abdomen......	1	4	1	2	1	1	1	2
Ulcerations...................	11	4	9	5	9	1	6	11
From being Branded...........	5	3	2	0	3	0	4	1
Total Rejected............	433	427	413	420	368	367	359	328
Total Passed.............	567	573	587	580	632	633	641	672

It is to be expected that among soldiers chosen in this careful manner, constituting a picked body of men, and subjected by the restraints of discipline to regular habits of life, the mortality would be small in times of peace. This is confirmed by the table of mortality in the army for a period of twenty years of peace, (exclusive of 1847 and 1848, of the Mexican War,) from the report of the Surgeon-General.

STATISTICS OF MORTALITY IN U. S. ARMY.

Years.	Officers.		Entire Army.		
	No. of Officers in Army.	Deaths.	Mean Strength of Whole Army.	Deaths of Whole Army.	Ratio of Deaths per 1,000 of Mean Strength.
1840	735	14	10,116	254	25
1841	735	10	9,748	387	40
1842	733	16	10,000	303	30
1843	733	4	9,863	160	16
1844	733	9	8,570	96	11
1845	734	19	8,590	78	9
1846	775	37	9,083	246	27
1849	884	36	9,148	734	80
1850	889	20	8,970	294	34
1851	896	23	9,242	299	32
1852	964	16	9,203	229	25
1853	952	43	9,994	279	28
1854	948	25	8,095	258	32
1855	1,040	22	9,367	309	33
1856	1,060	15	14,434	358	25
1857	1,085	19	12,701	172	14
1858	1,084	24	14,510	207	14
1859	1,084	15	15,510	247	16
Total....	1,5993	377	187,144	4,910	26

These statistics show the annual death rate of the entire army to be 1 in 38.1, and among the officers 1 in 42.4. It may be taken as a fair standard of the mortality of troops in this country during peace, although some of the deaths embraced in the table resulted from disease contracted or wounds received in the Mexican war, and it includes also those who died from cholera.

During periods of hostilities the havoc of life is truly appalling, not from the carnage of battle, as is commonly supposed, for the proportion of deaths in action is small when compared with the losses from disease.

"The life of a modern soldier is ill represented by heroic fiction," says Dr. Johnson, "War has means of destruction more formidable than the cannon and the sword. Of the thousands and ten thousands that perished in our late contests with France and

Spain, a very small part ever felt the stroke of an enemy; the rest languished in tents and ships, amidst damps and putrefaction; pale, torpid, spiritless, and helpless; gasping and groaning, unpitied among men, made obdurate by long continuance of hopeless misery; and were at last whelmed in pits, or heaved into the ocean, without notice and without remembrance. By incommodious encampments and unwholesome stations, where courage is useless and enterprise impracticable, fleets were silently dispeopled and armies sluggishly melted away."

Take the losses in our wars, as exhibited by the following tables:

CASUALTIES IN THE U. S. ARMY DURING THE MEXICAN WAR.

OFFICIAL REPORT OF THE ADJUTANT GENERAL. (DEC. 3, 1849.)

Forces Employed and Mustered into Service.	Aggregate of Troops, Officers and Privates.	Mortality.							
		Killed in Battle.		Died of Wounds.		Died of Disease.			
		Officers.	Men.	Officers.	Men.	Officers.	Men.	Deaths from Accidents.	Aggregate Deaths, Officers and Men.
Regulars, ...	26,922	46	484	27	378	85	4,629	169	5,818
Volunteers, ..	73,532	47	467	....	100	16 included ☞	6,256	192	7,078
Total, ...	100,454	93	951	27	478	101	10,885	361	12,896

The aggregate strength of the U. S. Army, in the war with Mexico, being 100,454, and the aggregate mortality from all causes being 12,896, the average loss was 1 in every 7.26. Of these only 1,049 were killed in action, while 11,347 died from accidents and disease, so that the proportion of the former to the latter was 1 to 10.81.

The summary of mortality in the Union army during our civil war, as shown by the annexed table, was:

Killed in Battle,	61,362	Total mortality, 279,376.
Died of Wounds,	34,727	
Died of Disease,	183,287	

The proportion between those killed, and those who died from disease, was about 1 to 3; and the average death rate for all in service was 1 out of every 9.98.

CASUALTIES IN THE U. S. ARMY DURING CIVIL WAR.

FROM REPORT OF PROVOST MARSHAL GENERAL.

Forces Employed.		Mortality.					
		Killed in Battle.		Died of Wounds.		Died of Disease.	
Arm of the Service.	Aggregate of Troops.	Officers.	Men.	Officers.	Men.	Officers.	Men.
Cavalry, Regulars....		23	284	....	....	18	470
Artillery, "	total.	32	308	....	....	12	472
Infantry, "	67,000	102	1,298	....	....	53	1,807
Cavalry, Volunteers,...		378	6,816	144	4,018	331	24,702
Artillery, " ...	total,	79	1,630	47	955	99	8,725
Infantry, " ...	2,342,876	2,888	45,610	1,358	27,122	1,711	118.586
Cavalry, Colored......		3	99	1	32	1	883
Artillery, "	total,	3	36	1	31	16	3,508
Infantry, "	180,017	118	1,655	44	974	73	21.820
Aggregate,...........	2,788.893	3,626	57,736	1,595	33,132	2,314	180,973

The small ratio of those destroyed in battle is not surprising, when we consider the want of accuracy of fire that is characteristic of engagements. During the excitement of fighting the soldier loads and discharges his musket so hastily that few of the shots are effective. After the battle of Gettysburg a large number of the rifles that had been used were sent to the Arsenal at Washington, where they were found in many instances to contain two or more cartridges, and some were even loaded to the muzzle.

It has been calculated that in the early European wars from 3,000 to 10,000 cartridges were expended for every soldier wounded; and in the Mexican War only one bullet out of every four hundred fired struck any of the enemy. The same disproportion of mortality from wounds and disease is shown by the military statistics of foreign nations. In the Crimean War the mortality among the Allied troops from disease was four times as great as from wounds. Sir

Alexander Tullock says, "out of about 10,000 men who died during these seven months, belonging to the Crimean Army, only 1,200 were cut off by cholera; the remainder perished by no foeman's hand, no blast of pestilence, but from the slow though sure operation of disease, produced by causes most of which at least appear capable of mitigation." In Algiers the French loss from disease was one-eleventh of the aggregate strength, while only one-two hundred and sixty-fifth died from wounds; M. Bondin, in the "Annales d'Hygiene," which contains this summary, remarks that, "the hospital is the true field of battle for the soldier."

The diseases which are so prevalent among armies are diarrhœa and dysentery, pneumonia, typhoid and malarial fevers, cerebro-spinal-meningitis or spotted fever, rheumatism, bronchitis, camp-measles, and scurvy. Of these, diarrhœa and dysentery have been the source of great mortality in all wars, ancient and modern, and especially during our civil war. From the statistics of Ass't Surgeon Woodward, U. S. A., it appears that the number of cases and deaths from diarrhœa and dysentery in the Union Army during the first two years of the war, was as follows:

Atlantic Region,	346,489	cases;	2,780	deaths.
Central "	375,037	"	8,568	"
Pacific "	4,149	"	12	"
Total,	725,675	"	11,360	"

Among the Confederate troops, for the same period, there were 3,354 deaths from these diseases, according to the statistics of Surgeon Joseph Jones, of that army, prepared for the Confederate Surgeon General. But the most terrible ravages of mortality from diarrhœa and dysentery (probably the greatest ever recorded) were among the prisoners in Andersonville. Dr. Jones reports 4,529 deaths in six months among the Union prisoners, out of an average strength of 19,450 men confined there, and says, "these figures are below the truth. As far as my personal examination extended, almost every prisoner was afflicted with diarrhœa or dysentery."

Further details regarding disease are unnecessary. Enough facts have been given to show the fearful odds, in the struggle for existance, with which the soldier has to contend.

A marked disproportion is noticeable, of mortality in the different arms of the service, which is to be expected from the varied duties of the several branches. Constituting about four-fifths the numerial strength of an army, the Infantry sustains the greatest loss, either in camp or on the field. For this reason Voltaire justly designates this branch of the service as the soul of armies.

There is also a disparity between the proportional mortality of officers and privates from wounds and from disease. Officers, being better fed, clothed, and sheltered, enjoy a greater immunity from disease than enlisted men, and (as may be seen by the table,) the mortality is proportionally smaller. But the mortality from casualties in battle is the largest (in proportion to their strength) among the officers. They are *leaders,* and—conspicuous from their dress as well as position—a target to the marksmen of the enemy.

A distinguished writer has advanced the theory that " there is a principle of natural selection in an enemy's bullets, which bears more heavily against large than against small men. Large men are more likely to be hit. The chance of a man being struck by accidental shots is in proportion to his sectional area, that is, to his shadow on a neighboring wall cast by a distant light; or to his height multiplied into his average breadth." He estimates the relative chances of a large and small soldier being shot to be greatly in favor of the small man, in respect to accidental shots, or to direct aim—that he runs the least risk of being aimed at, or of being hit if fired at.

We cannot fail to be impressed with the conviction that the military service seriously affects the average life-term of its followers. Yet, in exceptional instances, the lives of those who have survived its dangers are prolonged to a good old age; the very hardships and privations of war, course food, long marches, and the exposure of the camp—serve to strengthen many naturally weak constitutions, and increase their expectation of life. We add some recent instances of longevity among this class:

Field-Marshal Hugh Gough, Com.-in-chief British Army, Chinese and Sekh War. Died 1869, aet. 90.

Maj.-Gen. J. E. Wool, U. S. Army. Died 1869, aet. 80.

Gen. Sir. G. DeL. Evans, British Army, actively engaged in American, Peninsular, Indian, and Crimean War. Died 1870, aet. 83.

Gen. and Marquise de Lawoestine, French Army. Died 1870, aet. 85.

Field-Marshal Hess, Austrian Army. Died 1870, aet. 82.

Gen. Sir Wm. Wood, British Army. Died 1870, aet 89.

Field-Marshal A. G. Woodford, Governor of Chelsea Hospital. Died 1870, aet. 87.

Count Flahault de la Billarderie, French Army. Died 1870, aet. 85.

Field-Marshal John Burgoyne, British Army. Died 1871, aet. 88.

THE COMMERCIAL CLASS.

The life of an individual of the mercantile class is less distinctive or marked than that of other vocations, and therefore furnishes more difficulties in any enquiry as to his longevity. There is neither uniformity in the habits of merchants as influenced by their employments, nor do they differ in any essential respect from those of many unemployed persons.

Any variations in the law of mortality among them would seem to result from differences of riches rather than from anything connected with their business habits.

The sanitary condition of their lives is dependent upon their social condition, which is regulated entirely by their means. The restless activity and competition which characterizes modern trade, and the anxiety and excitement of speculation, so unavoidable in many business enterprises, proves prejudicial to health, especially with those of weak constitutions; but sickness and disease is more generally induced by habits of living, occasioned by a superabundance, or a want of riches.

"Affluence," says Lankester, "involving less personal expenditure, increases the longevity of those who enjoy it as compared to the average due to disease and intemperateness which embraces towns with all their misery and wretchedness; but it does not ensure the absence of excessive and abnormal expenditure, to which it directly leads, luxury being the parent of disease."

According to the mortality statistics of Massachusetts, among nearly 10,000 merchants, financiers, and capitalists, the average longevity was 48.26 years,—while the mean of nearly 100,000 deaths of all vocations gave an average of 50.35 years. To ascertain the reason for this increased death rate of the richer portion of the community, we must look to other causes than those connected with their business career. But with the less opulent of the commercial class—agents and shop-keepers, who pass most of their time in close rooms, suffering from the want of air and exercise—we can trace the deterioration of life to their unhealthy occupation.

COMMERCIAL TRAVELERS.—These were found to give only an average life term of 34.7 years, based upon the returns of nearly 5,000 deaths. This low average must be ascribed to the effects of intemperance, which is common among them. One writer, in speaking of them, says: "Well fed, riding from town to town, and walking to the houses of the several tradesmen, they have an employment not only more agreeable, but more conducive to health than almost any other dependant on traffic. But they destroy their constitutions by intemperance; not generally by drunkenness, but by taking more liquor than nature requires. Dining at the traveler's table, each drinks his pint or bottle of wine; he then takes negus or spirits with several of his customers; and at night he must have a glass or two of brandy and water."

It would seem as if an unsettled, wandering life, fostered the habits of intemperance, as is seen in the cases of commercial travelers, sailors, and soldiers.

CLERKS.—In every commercial country, clerks form a numerous industrious, and useful class of its population. As a body they do not compare favorably, in regard to their expectation of life, with other employments.

Their life is sedentary, and after the discharge of their daily duties they have little disposition or leisure to employ their unoccupied time in those atheletic and out-door exercises, so essential to health. A constrained and cramped position of the body, maintained for a long time, and the habit of leaning against the desks before which they stand or sit, impedes respiration, induces curvature of the spine, and often lays the foundation for dyspeptic complaints.

As light usually enters not from the top, but from the side of the rooms in which they carry on their labor, the sight becomes impaired in the eye most exposed. In our modern public offices, where large numbers of clerks are employed, this evil has been guarded against, and, as in an artist's studio, light is admitted from the roof. But while sheltered from one evil they are exposed to another. The number of persons passing in and out, and the constant shuffling of feet, fill the already vitiated air of the ill ventilated offices with insensible particles of dust, which enter the lungs, and add to the exhaustion which clerical labor induces.

Clerks, in respect to the average duration of life, rank lower in the scale than some vocations which are regarded as less favorable, and which moreover are exposed to casualties. Neison gives the expectation of life, in the class designated as clerks, from 20 to 60, as only 75 per cent. of the general average; and as compared with miners, bakers, plumbers, painters, and glaziers, he has furnished us with the following table, showing the difference in these employments at five decennial periods.

EXPECTATION OF DIFFERENT TRADES AT PARTICULAR AGES.

NEISON.

Age.	Clerks.	Plumbers, Painters, and Glaziers.	Miners.	Bakers.	Rural, Town, and City Districts.
20	31.8	36.9	40.7	40.0	43.8
30	27.6	30.5	33.1	32.3	36.6
40	21.8	24.3	24.9	24.4	29.3
50	16.0	17.1	17.5	19.1	22.2
60	12.4	11.8	12.2	14.1	15.7

The official returns of Massachusetts for nearly twenty-four years, ending Jan. 1st, 1867, have registered the deaths of 1,755 clerks, whose aggregate ages were 60,275, and whose average age was 34.34 years.

◆

THE SEA-FARING CLASS.

Sea-faring men, as a class, are victims of ill treatment and abuse at sea, and the prey of harpies on shore. Drifting from place to place, unrestrained by those domestic ties which regulate the habits and confine the activities of most adults to particular employments and limited localities, the sailor has little capacity to adapt himself to any other means of subsistence.

The Law has endeavored to shelter him from numerous outrages and frauds, from which he appears unable to protect himself by environing him with beneficent statutes of relief.

Yet the social condition of mariners is most deplorable, and vice is proverbial with them. The "sailors' quarters" of a city or town is always the most degraded district, abounding in vile dens. the resort only of the abandoned and criminals.

The annexed table shows the cause of death among the inmates of the Seamen's Retreat during the year 1857,—the average age of those who died, and the average duration of illness before and after admission ·

CAUSE OF DEATH AND AVERAGE AGE AT DEATH OF SAILORS IN SEAMEN'S RETREAT.—1857.

Specific Disease.	No. of Cases.	Average Age at Death.	Duration of Illness before Admission.	Duration of Illness after Admission.
Consumption.........	41	32	278	78
Disease of the Heart..	4	38	305	39
Chronic Dysentery....	7	32	55	31
Albuminaria.........	5	29	93	19
Cancer of Neck......	1	18	550	88
" Lip........	1	45	8 years.	305
" Stomach ...	1	41	35	24
Exhausting Suppurat'n.	2	25	289	4
General Dropsy......	1	31	93	28
Aneurism...........	1	32	....	28
Affections of Brain...	3	41	4 years,	270
Erysipelas...........	1	24	35	40
Remmittant Fever....	4	26	....	....
Congestion of Brain..	1	50	....	....
Hepatilis............	1	24	10	11
Injuries on Ship-board.	1	20	40	5
Tetanus.............	3	26	4	2
Pleuro Pneumonia....	3	26	10	4
Delirium Tremens....	1	24	10	7
Cholera.............	1	60	1	1
Wounds.............	1	21	2	6
Pneumonia..........	3	26	8	7
Typhoid Fever.......	3	21	25	32
Typhus "	2	38	21	9

It is a very significant fact that (with the exception of the death of one man from cholera,) all of those who died in the Retreat were comparatively young, the oldest being but fifty years old. A large proportion of the mortality resulted from consumption, 41 cases in all, and the average age at death of the consumptives was 32 years.

The diseases were undoubtedly aggrevated by neglect while on ship-board. "For," says Dr. Moffat, "few can have any conception of the wretchedly, filthy, naked, and wounded condition of the patients received at the Retreat, from on board of vessels, newly arrived, and sent us by order of the Health Officer."

No other life is subject to more casualties than that of the seafaring man. These may be comprised under the general heads of accidents and exposure. His pursuit calls him to every quarter of the globe, subjecting him to extremes of temperature and dangerous climatic influences. At one time we find him contending with the ice of the Arctic Seas, at another under the equator enduring the fervid heat of the torrid zone. These changes require great physical endurance, and test the strength of the most robust constitution. The weak and delicate succumb to these trials, and only those who possess exceptional vitality survive to boast of longevity.

As an illustration of the dangers, seen and unseen, which beset the life of the sailor, we may cite the recent case of the destruction of the whole American whaling fleet, in Behring's Straits, where no less than 33 vessels were at once crushed by floes of ice, and the whalers—numbering some 1,200 souls—barely escaped sudden death with the loss of everything.

WRECKS ON BRITISH COASTS.

PUBLISHED BY ENGLISH GOVERNMENT.

Year.	Wrecks.	Collisions.	Total Number of Vessels Wrecked.	Lives Lost.
1863	1664	331	2,001	620
1864	1390	351	1,741	516
1865	1656	354	2,012	698
1866	1260	422	2,229	296
1867	1676	414	2,090	1,333

Hundreds of lives are almost annually lost in mid-ocean, and in many instances so complete is the catastrophe in which they perished that no survivor is left.

Many shipwrecks occur along our exposed sea-board, to say nothing of the hazards of our river navigation. Even our fishing fleet are not exempt from the casualties which seem inseparable from the sea. Frequent collisions are added to the dangers of the tempests. These men push their adventurous little vessels from Cape Cod away to the banks of Newfoundland, frequently enveloped in the dense fogs of those latitudes. Of this density we may form a just notion from the fact that the lights which ships are required to carry scarcely penetrate beyond the length of the vessel that carries them. The sound of the fog horn is often drowned by the louder sound of the machinery of the steamer, or the confused noises from a sailing vessel. In this way, unwarned of danger, many a helpless fishing bark has been struck and carried down by the largest vessel, all on board perishing together.

An inspection of the following table, however, will show the influence of the sea upon the life term of those engaged thereon. It is from the report of deaths in the State of Massachusetts for the twenty-four years ending with Dec. 31st, 1866.

MORTALITY STATISTICS OF MASSACHUSETTS SEAMEN.

OFFICIAL REGISTRATION REPORT.

Occupation.	No. of Persons.	Aggregate Ages	Average Age.
Fishermen	191	7,635	39.95
Marines	3	125	41.66
Naval Officers	33	1,582	47.94
Pilots	57	3,382	57.58
Seamen	5,876	266,808	47.11

The statistical returns of other countries, which are more complete than our own, illustrate and confirm the same view. The following is deduced from the returns of seamen dying before the termination of the voyage, in the English Merchant Service

MORTALITY STATISTICS OF ENGLISH SEAMEN.

REGISTRAR-GENERAL'S REPORT.

Years.	Strength.	Deaths.	Annual Rate of Mortality to 100 Living.
1852	159,563	2,205	1.38
1853	172,525	3,276	1.90
1854	162,416	2,772	1.71
1855	168,537	3,318	1.97
1856	173,918	3,549	2.04
1857	176,387	3,444	1.95
1858	177,832	3,480	1.96
1859	172,506	3,430	1.99
1860	171,592	3,760	2.19
1861	191,957	3,580	2.08
1862	173,863	3,620	2.08
1863	184,727	3,380	1.83
Total, ...	2,065,823	39,820	1.93

Prof. Elliot, of Washington, has constructed a life-table of American sea-going sailing vessels, based upon information obtained of the history of 26,737 vessels, of which 4,165 were known to be extant. Out of every thousand vessels—

584.4 survive 10 years.
219.5 " 20 "
57.2 " 30 "
11.1 " 40 "
None " 50 "

The average duration of a ship is 13.8 years.
After having been built 10 years, lasts 9.3 years.
" " " " 20 " " 7.2 "
" " " " 30 " " 6.2 "
" " " " 40 " " 2.7 "

Recent marine disasters show the insecurity of vessels generally, irrespective of size, age, or strength. The loss of the Gloucester fishing fleet during the present season—the destruction of 22 vessels, and the sacrifice of 136 lives—is greater than has occured in any other season since 1862.

So hazardous is the career of a sailor, that the average duration of his life after commencing to follow the sea, has been estimated to be only 12 years. A very short span of life, certainly; and this mortality is largely due to habits of intemperance, which are so common among them. We have already shown the loss of life from drinking,—that is, the increased mortality from disease,—but with this class of men suicide, drowning, shipwreck, death from exposure, violence, fire, are all often merely the sequels of over-indulgence in liquor, and its consequent neglect and carelessness. Where other men endanger their health by excesses in stimulants, the mariner perils his life.

CONCLUDING REMARKS.

In presenting this enquiry into the relations of the various trades and professions to longevity, we have endeavored to be guided by Sir Isaac Newton's celebrated maxim: "hypotheses non fingo," relying upon facts, in the form of statistical tables, to explain the many contradictions and difficulties, which usually perplex most investigations into the causes of longevity.

These tables, obtained from the most authentic sources, furnish a condensed summary of a vast amount of materials, accumulated by previous individual industry and research. They are so arranged as to enable the reader to institute just comparisons, and arrive at correct conclusions.

The advantage to be derived from the dissemination of such information, and its practical application, has been demonstrated by Dr. Simpson, of Edinburgh, in the case of that fatal disease—consumption: "Of the thousands that die of it annually," he says, "some thousands might be saved, if a few simple facts were attended to by those hereditarily predisposed to its attacks;" if, for example, they were more careful to select for themselves proper *occupations, trades*, and *places of residence.*

Enough, however, has been said to prove the importance of the subject, and to demonstrate its utility, as, also, the wisdom and liberality of those who devised the plan of these Essays for awakening general attention to it.

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